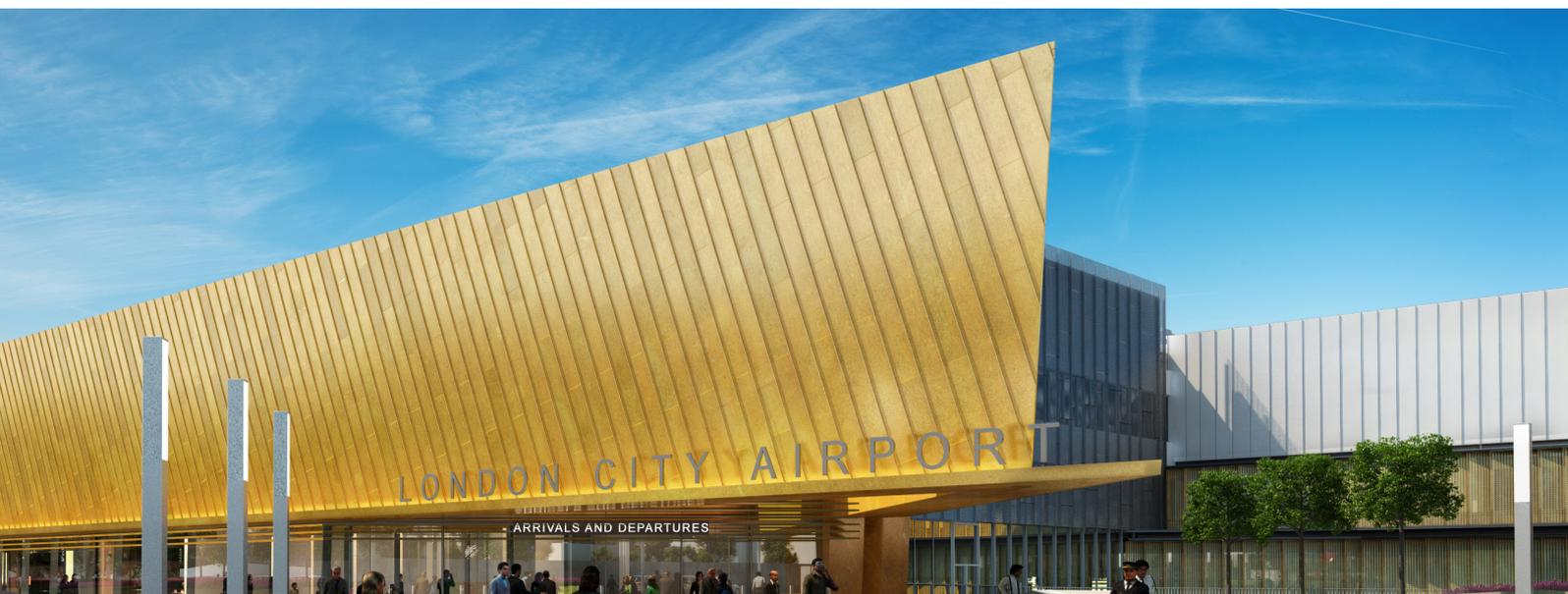


CITY AIRPORT DEVELOPMENT PROGRAMME (CADP)

# CADP: ENVIRONMENTAL STATEMENT ADDENDUM

INCLUDING FURTHER  
INFORMATION UNDER  
EIA REGULATION 22

London City Airport   
Get closer.







**CITY AIRPORT DEVELOPMENT  
PROGRAMME (CADP)**

**ENVIRONMENTAL STATEMENT  
ADDENDUM**

**INCLUDING FURTHER  
INFORMATION  
UNDER EIA REGULATION 22**

4 March 2014

**RPS**  
14 Cornhill  
London  
EC3V 3ND

**Tel:** 020 7280 3200  
**Fax:** 020 7283 9248  
**Email:** [rpslp@rpsgroup.com](mailto:rpslp@rpsgroup.com)



# CONTENTS

---

1.	INTRODUCTION .....	1
2.	CADP1 DESIGN REVISIONS.....	4
3.	REGULATION 22: FURTHER DETAILS ON THE CONSTRUCTION PROGRAMME .....	10
4.	REGULATION 22: NOISE AND VIBRATION .....	24
5.	REGULATION 22: AIR QUALITY .....	40
6.	REGULATION 22: SURFACE TRANSPORT AND ACCESS .....	48
7.	REGULATION 22: CLIMATE CHANGE.....	56
8.	REGULATION 22: BREEAM ASSESSOR DETAILS .....	60
9.	NON REGULATION 22 MATTERS AND CLARIFICATIONS.....	61
10.	SUMMARY AND STATEMENT OF CONFORMITY.....	72
11.	GLOSSARY AND ABBREVIATIONS.....	76

## APPENDIX 1.1

London Borough of Newham Regulation 22 Request Letter

## APPENDIX 3.1

Indicative Detailed Construction Programme

## APPENDIX 3.2

Mark-up of Drawing CA0L-900 Rev E with Working Hours and Piling Zones Annotated

## APPENDIX 3.3

Out of Operational Hours (OOOH) Programme

## APPENDIX 3.4

Out of Operational Hours (OOOH) Construction Noise Prediction Contour Maps

## APPENDIX 3.5

Updated (Track Changed) ES Chapter 6: Development Programme and Construction

## APPENDIX 4.1

A1125.129/AH R02 Air Noise Contour Prediction using INM Derivation of Assumptions May 2013

## APPENDIX 4.2

Dispersion Departure Routes Comparison Runway 27 and Runway 09- Figures 4.2.1- 4.2.3

## APPENDIX 4.3

LAeq, 16h Airborne Aircraft Noise Contours- Figures 4.3.1- 4.3.7

## APPENDIX 4.4

CadnaA Aircraft Ground Noise Contours- Figures 4.4.1- 4.4.6

## APPENDIX 4.5

CadnaA Aircraft Ground Noise Contours- Figures 4.5.1- 4.5.7

## APPENDIX 4.6

Assumed Taxi Routes- Figures 1-4

## APPENDIX 6.1

---



Revised DLR Assessment

**APPENDIX 8.1**

RPS BREEAM Assessor Licence

**APPENDIX 9.1**

London City Airport's Sustainable Construction Strategy and Assessment Checklists

**APPENDIX 9.2**

Framework Taxi Management Plan

**APPENDIX 9.3**

Draft Parking Management Plan

---

# 1. INTRODUCTION

---

## a) Background

- 1.1 On the 26th July 2013 London City Airport (the Airport) submitted proposals for the City Airport Development Programme (CADP) comprised in two planning applications:
- a) CADP 1 – A detailed application for new airfield infrastructure and extended passenger facilities at the Airport (LPA ref. 13/01228/FUL)
  - b) CADP 2 – An outline application for a new hotel with up to 260 bedrooms (LPA ref. 13/01373/OUT)
- 1.2 The applications were accompanied by a number of documents, including an Environmental Statement (ES) and its Non-Technical Summary (NTS) which together report the findings of the Environmental Impact Assessment (EIA) of the proposed CADP.
- 1.3 In accordance with Regulation 22 (*“Further information and evidence respecting environmental statements”*) of the Town and Country Planning (Environmental Impact Assessment) Regulations 2011, the London Borough of Newham (LBN) made a request for “further information” and for clarification of other EIA related matters. This request was made by a letter from Sunil Sahadevan, Principal Planning Officer dated 21<sup>st</sup> January 2014, which is re-produced at Appendix 1.1. The Regulation 22 request was compiled by LBN after taking into account of the comments of its own officers, LBN’s appointed consultants as well as representations from adjoining boroughs, the Statutory Consultation bodies, interest groups and members of the public in relation to the EIA. The Airport’s own consultant team have reviewed these detailed comments and consider that they do not raise any new or material issues which necessitate the submission of additional further information beyond that requested through LBN’s Regulation 22 letter. In this regard, the Airport concurs with LBN’s interpretation of these third party comments.
- 1.4 The main purpose of this ES Addendum is to respond to each matter raised in the Regulation 22 request, considering the various technical queries set out in Part 1 of the LBN’s letter which relate directly to the original ES (July 2013), as well as to provide written clarification and supplemental information in response to the other matters raised in Part 2 of the letter. This ES Addendum also describes the minor revisions to the design of CADP1 which have been now been incorporated into the terminal building and forecourt design in order to respond to the comments of LBN’s Design Review Panel (Part 3 of the letter) and examines whether these design changes have any bearing on the conclusions of the ES.
- 1.5 This ES Addendum is intended to be read in conjunction with the full ES and its accompanying technical appendices (July 2013) and other documents that were submitted to LBN with the CADP planning applications. Where appropriate, cross references are provided to corresponding sections of the ES where further details on a particular topic can be found. In all cases, the further information provided herein does not alter the principal findings of the ES which remain valid and up to date, as set out in this ES Addendum and summarised by way of a tabulated ‘EIA Compliance Statement’ presented at Section 10. Instead, this ES Addendum acts to supplement the data already contained in the ES and to elaborate or expand upon certain matters, where requested.

- 1.6 Other stand-alone documents which support this ES Addendum include the following:
- a) Updated ES Non-Technical Summary (NTS) (RPS, March 2014),
  - b) Planning Statement Addendum (Quod, March 2014):
  - c) Design and Access Statement Addendum (Pascall + Watson, January 2014):
  - d) Energy and Low Carbon Strategy Addendum (Atkins, January 2014):
  - e) The package titled 'CADP Revision to Application Drawings' (March 2014).
- 1.7 The NTS has been updated with new text (in red ink) in order to summarise the further information that is provided in the ES Addendum. Corresponding changes to the original text have been struck-through in order to highlight these changes to the reader. The majority of the new information relates to the further assessment of noise from the CADP (air noise, ground noise and construction noise), as requested by LBN.
- 1.8 The general structure and approach adopted in this ES Addendum is detailed below.
- b) Approach to the Environmental Statement (ES) Addendum**
- 1.9 This ES Addendum is based on the three parts of LBN's Regulation 22 letter (Appendix 1.1) as follows:
- Regulation 22 Letter, Part 1 (Items 1-41):** *Identifying where additional information is required in relation to the ES as part of a Regulation 22 submission*
- 1.10 Sections 3 to 8 (and the corresponding technical appendices) provide the further information requested in Part 1 of LBN's letter. The specific wording of the Regulation 22 letter has been replicated in full, with the appropriate responses set out directly below each question/ topic. This further environmental information corresponds to the following ES Chapters: Surface Transport and Access (ES Chapter 7); Noise and Vibration (ES Chapter 8); Air Quality (ES Chapter 9); and Climate Change (ES Chapter 17).
- 1.11 Items 22-29 of Part 1 of the Regulation 22 letter cover matters related to construction noise and the development programme, which were considered in both ES Chapter 6: Development Programme and Construction and ES Chapter 8: Noise and Vibration. These responses have been provided within Section 3: Further details on the proposed construction programme. This Section includes an account of the detailed CADP construction programme (for illustrative purposes) and should be read in conjunction with the updated ES Chapter 6 and associated figures.
- 1.12 In response to matters raised by LBN, an account is also given of the measures that will be implemented to reduce the extent and duration of night time and weekend working. This includes the possibility of some additional activities (e.g. piling) occurring during the weekday operational hours of the Airport (06:30 to 22:00 hours) in lieu of 'out of hours' working. This shift in working hours would help reduce noise disturbance during the quieter periods when the Airport is closed. However, the options for an intensification of day time working needs to be balanced against airport safety requirements regarding construction and the need to minimise the overall length of the construction programme. Furthermore, some activities carried out during the weekday

operational hours of the Airport would require a temporary relaxation of 'Transitional Surfaces' of the Airport (i.e. the safeguarding height zones radiating out laterally from the centre line of the runway), which need to be subject to the preparation of a 'safety case' submitted for approval by the Civil Aviation Authority (CAA). The likely additional construction mitigation measures are therefore set out in Section 3, with cross references to Section 4: Noise and its associated appendices.

1.13 In view of the additional detail provided in Section 3 of this ES Addendum, Chapter 6 of the ES has been amended and updated, and for the sake of completeness, is re-provided (with track changes) within Appendix 3.5.

1.14 No other questions have been raised by LBN in Part 1 of its letter which directly affect the content of the ES chapters, and therefore no other 'replacement' chapters are provided.

**Regulation 22 Letter, Part 2 (Items 1-13):** *Setting out areas where further information/clarification is required on non-Regulation 22 matters*

1.15 Section 9 of this ES Addendum is titled 'Non Regulation 22 Matters and Clarifications' and responds to Part 2 of LBN's letter relating to noise, sustainability and transportation issues.

**Regulation 22 Letter, Part 3 (Items 1-4):** *Identifying recommended amendments to the design of the proposed development*

1.16 The following section of this ES Addendum (Section 2) provides a brief overview of the minor design revisions to CADP1 which have been made in response LBN's Design Panel's comments, as summarised in Part 3 of LBN's letter. This section considers the implications of these changes in the context of the EIA.

1.17 A fuller account of the design revisions is provided with reference to the DAS Addendum and Revised Application Drawings.

#### **ES Addendum Summary and Appendices**

1.18 A summary of the ES Addendum is provided within Section 10 which lists each ES topic (or sub-topic) and identifies any implications of the Regulation 22 further information to the assessments and conclusions presented in the ES. For the sake of completeness, the original NTS of the ES has also been updated and is presented as a standalone document.

## 2. CADP1 DESIGN REVISIONS

---

### a) Background

- 2.1 The following Section provides an overview of the design revisions of the proposed CADP, with full details provided within the DAS Addendum (Pascall + Watson, February 2014) and updated scheme drawings (as listed at 1.6 above).
- 2.2 The proposed design revisions respond to the comments of LBN's Design Review Panel and constitute minor, largely aesthetic changes which do not materially alter the principal components of the scheme or the ES. In particular, there are no proposed changes to the terminal uses, floorspace or infrastructure of the CADP.
- 2.3 Part 3 of LBN's letter, titled Recommended Design Changes includes four comments relating to the design of the scheme which are discussed below. Items 1 and 2 are interrelated and have therefore been presented together.

#### **Part 3 - Item 1 and 2**

- a) *Re-clad the existing terminal to bring it into step cosmetically with the proposed new terminal.*
- b) *Simplify the 'metal monoliths' concept and propose changes to the cladding pattern and external materials.*

- 2.4 In response to Item 1, it is now proposed to clad the existing Terminal building in order to harmonise its appearance with other proposed new building facades. This change is illustrated by Figures 2.1 and 2.2 below which show both the previous cladding design and the revised materials.
- 2.5 The DAS Addendum provides full details of the extended cladding to the existing Terminal, which comprises a continuation of silver anodised expanded aluminium mesh. This will be designed in a manner which separates the new cladding from the existing Terminal facades in order to create a veiling effect that is similar to the proposed Terminal extensions buildings. The new facade will appear continuous in height with the Western Terminal Extension but distinct (in height and plan layout) from the Main Processor Building facades of the Eastern Terminal Extension.
- 2.6 The expanded aluminium panels that clad the Eastern Terminal Extension will no longer be in multiple orientations and will, instead, be maintained in a single orientation as a means of simplifying the design and reinforcing the concept of metal monoliths.
- 2.7 Details of these changes are shown on revised application Drawings 8.19 (Rev B) *Proposed East Development Elevation*, 8.20 (Rev A) and 8.21 (Rev A) *Proposed Phase 2 Western Terminal Extensions Sheet 1 & 2*.
- 2.8 It is considered that these revisions simplify the overall appearance of the scheme and provide a more continuous design, as desired by LBN.

- 2.9 It can also be seen from Figures 2.1 to 2.4 below that the cladding of the Arrivals Concourse Building has been altered due to concerns regarding the appearance of the previously proposed materials which might darken over time. The materials have now been changed from brass (copper and zinc) to copper and aluminium which will maintain a more durable golden appearance.

**Figure 2.1- Previous Visualisation of the Scheme from the South-West  
(included within the July 2013 ES and NTS)**



**Figure 2.2- Revised Visualisation of the Scheme from the South-West**



**Figure 2.3- Previous Visualisation of the Scheme from the South-East  
(included within the July 2013 ES and NTS)**



**Figure 2.4- Revised Visualisation of the Scheme from the South-East**



2.10

In addition to the existing terminal façade and cladding of the Arrivals Concourse Building described above, the cladding of the northern elevation of the proposed Eastern Pier has been revised. The dark grey aluminium panelling at the second level of the airside elevation has been replaced by a continuation of the same silver-grey zinc material that shrouds the rest of the form at this level. Full details of the materials and treatments to the proposed façade of the Eastern Pier are shown in revised application Drawing 8.19 (Rev B) *Proposed East Development Elevation* contained in the DAS Addendum. Revised Drawing 8.22 (Rev B) *Proposed Site Elevations* shows the proposed north elevation in the wider context of the Airport, including the extended Eastern Terminal/Pier.

- 2.11 In addition, there have been minor aesthetic changes to the forecourt and clearer markings for pedestrian routes. The main flag pavers in the proposed Forecourt have been re-oriented to be at 45 degrees rather than orthogonal to the King George V Dock wall. This is considered to better complement the orientation of pedestrian routes and the appearance of the proposed buildings.
- 2.12 These changes to the Forecourt are set out on revised application Drawings 7.2 (Rev A) *Forecourt Keyplan*, 7.4 (Rev B) *Proposed Forecourt Ground level 00*, and 7.10 (Rev B) *Proposed Forecourt Details Sheet 3* are further described within the DAS Addendum.

**Part 3- Item 3**

*The space provided for the main 'meet and greet' concourse feels tight and some minor tweaks to the plan to create a more generous space should be considered. The double height glazing to the front of the arrival building will be of benefit to the internal environment here, but care is needed to ensure that that this does not suggest an entrance externally*

- 2.13 In respect of the above comment, the application plans make it clear that the internal layout of the proposed Terminal Building is shown for illustrative purposes only. Nonetheless, the Design Team has amended the layout with the north extent of the general and catering seating area reduced by 1.5m. The results in increased space between the 'meet and greet' area railing and the general seating. Further details are provided within the DAS Addendum.

**Part 4- Item 4**

*The ownership issue of the dolphins is understood. Nevertheless it would be a lost opportunity not to use them for the display of public art. Further discussions with RoDMA would be welcome.*

- 2.14 The Airport share aspirations to introduce art, potentially on the Dolphins along the Dockside. The Dolphins are owned by the Royal Docks Management Authority (RoDMA) and the introduction of art would require their co-operation. The DAS Addendum includes correspondence from RoDMA which explains their willingness to work with Airport to explore this opportunity further.

**b) Consideration of the Design Revisions to the ES**

- 2.15 With regard to the minor design revisions described above, consideration has been given to the findings of each technical chapter of the ES as detailed within the table below.
- 2.16 Table 2.1 demonstrates that the design revisions described above do not materially alter the findings of the few ES chapters which are influenced by building design. For the purpose of this ES Addendum, this table is considered to constitute a 'Statement of Conformity' of the revised scheme details and the original ES findings.

**Table 2.1- ES Chapters and Design Revisions**

ES Chapter	Statement of Conformity in relation to the CADP Design Revisions
Chapter 1: Introduction	The revisions to the design do not materially change ES Chapters 1-5.
Chapter 2: Site Context and Scheme Description	
Chapter 3: EIA Methodology	
Chapter 4: Consideration of Alternatives	
Chapter 5: Planning Context and Existing Controls	
Chapter 6: Development Programme, Demolition and Construction	<p>The revisions to the design do not give rise to any new or materially different likely significant environmental effects to those set out in ES Chapter 6.</p> <p>However, this chapter has been updated in light of the Indicative Detailed Construction Programme and a replacement ‘track changed’ version of this Chapter is now enclosed at Appendix 3.5.</p>
Chapter 7: Socio-Economics, Recreation and Community	The revisions to the design do not give rise to any new or materially different likely significant environmental effects to those set out in ES Chapters 8 and 9.
Chapter 8: Noise and Vibration	The revisions to the design do not materially change ES Chapters 8 and 9.
Chapter 9: Air Quality	Further information and clarifications on matters to do with noise are provided in Sections 3, 4 and 9 of this ES Addendum in response to LBN’s Regulation 22 letter.
Chapter 10: Townscape and Visual	<p>In terms of visual impacts, it is likely that the design revisions recommended by LBN’s Design Review Panel will be beneficial in terms of improving the appearance of the Airport to local residents and other receptors. It will improve the prevailing townscape quality of the area and bring further visual interest to the KGV Dock and forecourt area.</p> <p>However, as the changes are relatively minor, these changes do not give rise to any new or materially different likely significant environmental effects to those set out in the findings of ES Chapter 10: Townscape and Visual Impact. In particular, as there will be no change in height of the Terminal buildings, there will not be any increase in the number of ‘visual receptors’ with a line of sight of the CADP. Accordingly, the impacts on the twelve representative viewpoints considered in the ES will remain unchanged.</p>

Chapter 11: Traffic and Transport	The revisions to the design do not give rise to any new or materially different likely significant environmental effects to those set out in ES Chapter 11 or the accompanying Transport Assessment (TA). Clarification on certain other transportation matters is presented in Section 6 of this ES Addendum.
Chapter 12: Water Resources and Flood Risk	The revisions to the design do not give rise to any new or materially different likely significant environmental effects to those set out in ES Chapters 12 and 13. In particular, the changes to the Forecourt do not alter the proposed surface water drainage strategy and planting regime described in these chapters and elsewhere.
Chapter 13: Ecology and Biodiversity	
Chapter 14: Cultural Heritage	LBN's comment relating to the dolphins (Item 4) and the associated response from RoDMA has been noted. The Airport shares the aspiration to enliven the Dockside and wish to work with RoDMA and LBN to understand potential opportunities and their feasibility.  The revisions to the design do not give rise to any new or materially different likely significant environmental effects to those set out in ES Chapter 14: Cultural Heritage.
Chapter 15: Waste	The revisions to the design do not give rise to any new or materially different likely significant environmental effects to those set out in ES Chapters 15-19.  Clarification of the calculation of Greenhouse Gas Emissions (GHG), as presented in ES Chapter 17: Climate Change is provided in Section 7 of this ES Addendum.
Chapter 16: Ground Contamination	
Chapter 17: Climate Change	
Chapter 18: Cumulative Effects	
Chapter 19: Summary of Mitigation and Residual Effects	

### 3. REGULATION 22: FURTHER DETAILS ON THE CONSTRUCTION PROGRAMME

---

#### a) Introduction

- 3.1 This Section responds to Items 22-29, Part 1 of LBN's Regulation 22 Letter. In order to address the requests from LBN, (particularly in relation to construction noise) further details have been provided on the construction programme, working hours and construction techniques.
- 3.2 This Section relates both to Chapter 6: Development Programme, Demolition and Construction and Chapter 8: Noise and Vibration of the ES. The responses to the requests below have therefore been provided by the project Engineers (TPS) in collaboration with the noise consultants (Bickerdike Allen Partners, BAP) and RPS.
- 3.3 For completeness, Chapter 6: Development Programme, Demolition and Construction has been updated (with track changes) to reflect the changes to the likely construction sequence and working hours. This updated chapter is presented in full at Appendix 3.5. It should be noted however that the majority of this chapter remains valid and up to date and thus, only the text which is rendered obsolete or is altered by the revised construction details has been amended. The further information on the construction programme, as requested by LBN, is contained at Appendices 3.1, 3.2 and 3.3 of this ES Addendum, as described below.

#### b) Regulation 22 Matters- 'further information'

##### Construction Noise and Development Programme

###### **LBN Reg 22 Request:**

*22) More detail is required on the impact from construction as set out in the Council's formal scoping opinion dated 4th December 2012. Time lines are needed to understand the frequency and level of the impacts. Particularly of concern is the works that are undertaken in the evening or night times i.e. after 18:00 and before 08:00, weekends from 13:00 on Saturday onwards and bank holidays.*

###### **Response:**

- 3.4 In response to this request, the CADP construction programme has been further developed by TPS and the Airport to inform a more detailed construction noise impact assessment, as described in the specific responses to LBN's queries on construction noise (below) and within Section 4 of this ES Addendum.
- 3.5 An Indicative Detailed Construction Programme (Revision 5, 03.02.14) has been prepared by TPS together with a written narrative to assist the reader in interpreting this detailed programme. This further information is contained at Appendix 3.1 of this ES Addendum.
- 3.6 The Indicative Detailed Construction Programme has been developed from the extrapolation of Figure 6.1 - Likely Construction Sequence, included within Chapter 6 of the ES. It is based upon the likely split between construction activities during airport operational hours and out-of-operational hours (abbreviated to 'OOOH').

- 3.7 As a consequence of this more detailed planning and construction logistics exercise, some potential programme efficiencies and minor reordering of tasks have been identified. These potential programme changes are also therefore reflected in an update to Figure 6.1 (Revision 07.02.14) and to the 7 associated 'Indicative Construction Sequence' drawings for each year of the CADP works, namely Figures 6.3 – 6.9 of Chapter 6 the ES. These figures are included in the full Updated Chapter 6: Development Programme and Construction presented at Appendix 3.5 (Revisions were made to Figures 6.3, 6.4 and 6.6).
- 3.8 To better illustrate the sequence of piling in KGV Dock, a new figure has been prepared titled 'Mark-up of drawing CA0L-900 Rev E with Working Hours and Piling Zones Annotated' contained at Appendix 3.2. This figure divides the piling works into 7 zones (1A, 1B, 2A, 2B, 2C, 3A and 3B) which correspond to the piling sub-phases shown on the Indicative Detailed Construction Programme. Within each zone, the figure also illustrates where pile casings are likely to be installed in the Dock during normal weekday hours (shown in pink) and those areas where, for safety and operational reasons, piling is likely to take place OOOH, as shown in yellow.
- 3.9 BAP has further annotated the Indicative Detailed Construction Programme to show all construction activities which entail more than 5% OOOH works. This figure uses a colour coded scale where the deepest shade of red represents activities that will mostly take place as OOOH works (>75%). Additionally, it illustrates, using a black hatched bar, those activities that would specifically take place during the weekend day-time hours (i.e. breaking away of the existing dock edge). This figure is presented in Appendix 3.3. A further description of such works and the options to reduce out-of-hours working is given below in answer to Item 24 of LBN's letter.
- 3.10 Lastly, BAP has prepared a series of predictive noise maps that show the likely extent and scale of construction noise (in increments of 5dB (A)) during these OOOH works (Appendix 3.4). These noise maps cover 3 month time periods throughout the CADP 6-7 year construction programme. A description of the purpose and outcome of this modelling work is provided below in answer to Item 23 of LBN's Regulation 22 letter.
- 3.11 However, for the sake of maintaining a logical order to the presentation of the further details of the construction programme, the responses to Items 24, 26 and 28 of LBN's letter are presented first, as set out below.

**LBN Reg 22 Request:**

*24) The assessment needs to consider how works will be balanced between weekend and night. More detail on the construction programme is needed to determine the impacts of the proposed pattern of working.*

**Response:**

- 3.12 As described above, the construction programme has been further developed to inform a more detailed assessment of construction noise. The Indicative Detailed Construction Programme has been developed based on the likely split of construction works between the Airport's core operational hours (i.e. 06:30 to 22:00 hours during the week; 06:30 to 12:00 on Saturdays and, 12:30 to 22:00 on Sundays) and the out-of-operational hours (OOOH) in between these times. The proportional occurrence of OOOH weekend and night-time activities was first identified in

bullet points after paragraph 6.88 (Chapter 6) of the ES and this is now elaborated upon below and within Appendices 3.1 – 3.3 of this ES Addendum.

- 3.13 As a consequence of the more detailed review of the construction programme and logistics, with a particular focus on reducing non-essential OOOH works, it has been possible to transfer certain activities to the day time period, as described below. In particular, the amount of night time piling in KGV Dock has reduced by 20%.
- 3.14 Construction works will be carried out during the Airport's core operational hours wherever practical. This will minimise any disruption during night time and at weekends (i.e. the typical periods of rest and leisure). This principle underpins the additional assessment regarding the impacts of the proposed pattern of working.
- 3.15 As well as the objective of minimising disturbance to local neighbours, daytime working is strongly preferred on commercial grounds due to the increased costs associated with out of hours working (e.g. staff costs and the premium attached to night time deliveries of materials). However, there are particular safety and operational circumstances of working in an active airport environment which means that some construction activities must inevitably take place whilst the runway, apron and terminal are not in active use. In particular, the Transitional Surface (part of the statutorily safeguarded Obstacle Limitation Surfaces (OLS) for the Airport) limits the height of permanent and temporary obstacles in the area of the proposed works so as to ensure the safety of aircraft. This surface comprises a graduated lateral height profile which allows taller obstacles to exist as the distance from the runway increases. Therefore, the ability to maximise daytime working also increases as the distance to the runway increases. Furthermore, the Transitional Surface, being less sensitive than other OLS, could accommodate minor infringements such as the temporary erection of cranes. However, such temporary infringements would need to be supported by the preparation of a 'safety case' for submission to the Civil Aviation Authority (CAA). As such, the CADP Indicative Detailed Construction Programme (Appendix 3.1) is not reliant on such dispensations.
- 3.16 The location of OOOH working and construction activities in general, will vary over the programme as the construction progresses. This spatial distribution of construction activity is illustrated by the 'Indicative Construction Sequence' drawings for each year of the CADP works, as shown in Figures 6.3 – 6.8 of the Updated Chapter 6 of the ES (Appendix 3.5). These figures show how, in any one period/ year, the same receptors will not be directly affected by noise and other disturbance from the construction works, meaning that many residents will benefit from extended periods of respite.
- 3.17 The intensity of the works will also vary according to the project programme, meaning that after a few months of localised construction activity, residents and other receptors will generally experience a rapid decline in noticeable effects from the works. In relation to out-of-hours works, some receptors in proximity to the active working area will experience less noise over time, for example, as the piling works in KGV Dock moves from west to east (as shown by the 'Mark-up of drawing CAOL-900 Rev E with Working Hours and Piling Zones Annotated' contained at Appendix 3.2). Furthermore, there will be many periods during the CADP construction programme where noise levels from OOOH working will be less than the prevailing ambient levels and therefore are likely to be virtually imperceptible. This is illustrated by the series of 3 monthly noise maps presented at Appendix 3.4

- 3.18 The out-of-operational hours (OOOH) period has two distinct entities – the 24 hour weekend period when the Airport is closed (12:00 Saturday to 12:30 Sunday) and weekday nights after the last aircraft have arrived or departed from the Airport (after 22:00 hours). The balance between the weekend and night time working has been informed by the noise assessment and the potential to generate disturbance. This has demonstrated during periods of peak OOOH working the noisiest construction activities, such as taxiway works, should be limited to weekend daytime OOOH periods. To limit night time disturbance breaking away of the existing dock edge will occur during weekend daytime OOOH hours.
- 3.19 Construction vehicle (HGV) movements associated with the Indicative Detailed Construction Programme have also been re-considered, as reported in Section 9 (e) of this ES Addendum. The peak number of HGV vehicle movements is anticipated to be in the region of 874 two-way trips per month during Phase 2 of the construction programme. This compares to 626 two-way trips per month reported previously on the ES Chapter 11: Traffic and Transportation and Transport Assessment (TA). This increase is primarily due to the revised assumptions on the form of the hotel construction (CADP 2). It is now anticipated that the hotel will be constructed by a concrete frame which will improve the extent of construction during airport operational hours thus reducing the requirement for OOOH works significantly for this particular activity. The peak number of construction staff vehicle movements has also been calculated at 194 two-way trips per day, which is again a small uplift on the 'average' movements previously assumed. However, these small increases in traffic flows are considered to have a negligible impact on local roads including Woolwich Manor Way and do not give rise to materially different likely significant effects compared to the programme considered under the ES Chapter 11 and the Transport Assessment. Furthermore, only a small proportion of the daily construction traffic will occur at peak times. There are no changes to the peak number of HGV vehicle movements within Phase 1 of the construction programme.
- 3.20 Through the more detailed assessment of the construction methodology and programme, the following key improvements have been identified to reduce OOOH works and any associated disturbance.
- a) Utilisation of a secant piled wall to the Western Energy Centre basement to minimise the temporary works required and thereby minimise noise disturbance;
  - b) Utilisation of a concrete frame on the proposed Hotel (CADP2) to minimise the requirement for cranes which would be restricted by the Transitional Surface; and,
  - c) Reduction of the expected night time piling for the deck from approximately 90% to 70% due to more detailed assessments on the potential for construction during operational hours.
- 3.21 The headline items that require construction when the Airport is closed are described in the following paragraphs, including a description of key decisions that have been made to minimise OOOH working.

### **Works within the Airfield Boundary including the Coaching Facility**

- 3.22 Works within the airfield boundary are restricted by the airfield operations and will require out-of-hours construction. In addition to the physical constraints posed by the operations, there are significant safety considerations such as the potential to generate debris that could damage aircraft engines. To minimise the extent of out-of-hours working, the project phasing has considered how the airside boundary will move as the project progresses with the aim of enabling construction in a landside environment as far as possible.

### **Piling for the deck over KGV Dock**

- 3.23 To enable construction over KGV Dock, a piled platform is proposed. OOOH construction is required due to the height constraints that the Airport's Transitional Surface imposes. The pile casing length has been reduced to maximise the ability to place the casings during operational hours in limited headroom. The use of vibration equipment for the installation of these shorter casings also provides a substantial reduction in the environmental impacts such as noise over driven piling. The spans of the deck have also been maximised to reduce the number of piles required.

### **Construction of the deck structure**

- 3.24 Cranage for the placement of the precast deck elements that requires infringement of the Airport's Transitional Surface will require OOOH construction. Precast elements have been used as these significantly reduce the amount of wet concrete delivery to the site, of which a significant proportion is likely to occur OOOH (see below). The precast elements facilitate the reduction in the number of piles as larger spans can be achieved. Without this approach, the deck would require temporary formwork which would be difficult to remove under the deck and would, in turn, limit the span of the structure requiring more piles and increased OOOH working.
- 3.25 Delivery of wet concrete for the in-situ topping on the deck which has a physical connection to the airfield will also require OOOH construction. The design utilises an in-situ topping to provide a smooth finished surface, although the depth of this topping has been reduced as far as practical. Due to the constrained nature of the Airport, the delivery of wet concrete through the live airfield is not considered practical. The programme and working techniques are based on setting up a landside working site for the precast elements, accessed by barge to enable the steel fixing during operational hours.
- 3.26 The levels of the deck have been developed to minimise the requirement for breakdown of the existing Dock wall. This reduces the amount of the wall that needs to be removed and the associated out-of-hours working that this involves.

### **Western Terminal Extension (WTE)**

- 3.27 The proposed WTE perimeter is approximately 5 metres from the elevated DLR station and track and, as such, all construction activity will need to ensure the continued safety of the railway, its operatives and passengers. DLR has strict approval processes in place to protect its assets from damage from adjacent construction activity. The running tracks, in particular, have to be maintained within very tight tolerances and any adjacent excavation or increased loading could impose ground movements that could cause the rails to move out of these tolerances.

- 3.28 The proposals will be discussed with the DLR asset protection managers to get their feedback and to agree a plan of action to protect the railway. As explained in Section 6 of the Planning Statement Addendum (Quod, February 2014), Transport for London (TfL) on behalf of DLR is seeking the imposition of a planning condition in respect of the design and method statements for all piling, foundations, basement and ground floor structures in proximity to their assets. Such details will therefore be submitted to and approved by LBN and DLR. Indeed, the Airport is already proposing that planning conditions should be included to require approval of a Demolition Method Statement, a Construction Method Statement and a Piling Method Statement by LBN before (parts of) the development commences. These draft conditions are set out in Appendix 4 of the Planning Statement Addendum.
- 3.29 TfL/ DLR will also be interested in any construction activity that could impair safety of the railway and, in particular, the use of any cranes, piling rigs and hoists which could fall onto the rail assets or from loads that are being carried by cranes etc over-sailing the tracks. The design will look to take into account reducing the need for such activities close to the Railway (such a roof jacking as was done at Heathrow Terminal 5 to reduce lifting at high level). Whilst no restriction in hours for the of general construction work is envisaged, it may be that certain safety critical activities close to the rail running lines such as crane or hoist erection etc may need to be carried out at night.
- 3.30 Particular working methods employed during the WTE construction include:
- a) It is expected that the first 25% of the period for the WTE frame installation will require crange that penetrates the Transitional Surface which would require OOOH construction. Thereafter, the crange OOOH is likely to be intermittent.
  - b) After the steel and concrete slabs are up, it is expected that a hoist would be employed to move materials to all floors including the roof to minimise the requirement for crange penetrating the Transitional Surface.
  - c) Cladding is composite metal panelling or panelised mesh which is likely to be raised using a crane to the roof and lowered down into place from above in sections with a 'spider crane'. It is currently expected that the cladding could be installed during operational hours after the materials are placed on the roof during night time or weekend shifts.
  - d) A small mobile spider crane is likely to be used on the roof to position the steel pergola and plant plus solar panels. Depending on the specific methodology, this may require occasional penetrations of the Transitional Surface which would require OOOH construction or a safety case to justify use during operational hours.

#### **Eastern Terminal Extension Construction**

- 3.31 The extent of OOOH construction for the Eastern Terminal Extension is expected to vary over the construction duration. During the first 15% of the period of the frame construction large crange conflicting with the Airport's Transitional Surface is likely to necessitate OOOH construction. This is driven by the requirement for a large reach to construct the frame over the existing Out Bound Baggage (OBB) area. This large reach is also required for the construction on the northern face of the building which is close to the existing East Pier. After this initial period, it is expected that out-of-hours construction will be more intermittent, which is dictated by the requirement for

crane to penetrate the Transitional Surface. The extent of weekday construction is facilitated for this element due to the connection to the Forecourt area.

### **Eastern Pier Construction**

- 3.32 A significant proportion of the Eastern Pier construction is anticipated to be OOOH construction, especially for the frame and envelope construction. This is dictated by the following constraints:
- a) The proximity to the airfield with the remaining section of KGV Dock to the south;
  - b) The material supply route through the airfield; and,
  - c) The height of the structure relative to the Airport's Transitional Surface.

### **Noise barrier installation**

- 3.33 There may be limited crane usage required to lift the noise barrier into place, requiring out of hours working.

### **Demolition of City Aviation House (CAH).**

- 3.34 Taking down the top of the building is likely to involve night or weekend working as a crane is likely to penetrate the Transitional Surface. CAH is a modular building which typically aids deconstruction.

### **Internal building works including the Terminal Reconfiguration.**

- 3.35 There will be out-of-hours works that are required inside the new and existing buildings. This is predominately driven by the need to avoid conflict with daily airport operations and passengers using the Terminal. The impact of this works is expected to be minimal due to the contained nature of work inside buildings.

### **Hotel (CADP2)**

- 3.36 Refer to responses to LBN Reg 22 Item (27) and (28) below which specifically relate to night and weekend working on the proposed Hotel.

### **Landside Civil and Services Works**

- 3.37 Refer to response to LBN Reg 22 Item (27) below which specifically relates to night and weekend working on the Forecourt.

### **Overview**

- 3.38 More detail on the specific construction activities will be provided in the Construction Environmental Management Plan (CEMP) and Construction Method Statement which will be finalised once a contractor has been appointed. A Draft CEMP was included within the July 2013 ES (Volume II, Appendix 6.1) and, being a largely generic document, this remains unaltered by the additional construction detail provided in this ES Addendum.
- 3.39 The whole of the CADP construction project will operate in accordance with the requirements of a Section 61 agreement with LBN under the Control of Pollution Act (COPA, 1974). This agreement will include specific noise limits for day and night-time working.

- 3.40 Further options for reducing the amount of out-of-hours working through a temporary relaxation of height constraints imposed the Transitional Surface will be subject to the preparation of a 'safety case' approved by the CAA. In particular, this may result in a further reduction in the amount of night time piling that takes place. The presentation of this 'safety case' to the CAA can only occur once planning permission for the CADP is obtained and detailed method statements have been drawn up by the Airport and its appointed Principal Contractor.

**LBN Reg 22 Request:**

*27) Section 6.16 of the ES – there needs to be greater justification for construction out of hours for landside works. There needs to be a clear justification on what issues are driving the need, and how such works have been minimised by design, program and working techniques.*

**Response:**

- 3.41 Paragraph 6.16 (Chapter 6) of the ES is as follows:

*“South of KGV Dock, works will be ongoing during the day and night time to construct the new Eastern Energy Centre, proposed Hotel and the Forecourt. This will bring construction activities in close proximity to residents, pedestrians and passengers. In particular, residents to the south, including on Hartmann Road, are potentially most vulnerable to disturbance from these works during this period.”*

- 3.42 This section specifically relates to the proposed Eastern Energy Centre, Hotel (CADP2) and the Forecourt, which sit in the 'landside' part of the Airport. Further details on the expected night time construction activities are provided for these elements in the following paragraphs. However, in order to avoid undue repetition, the reader should also refer to the above answer (to Item 24, paragraph 3.15) which explains the constraints of the Transitional Surface in place at the Airport.

**Eastern Energy Centre**

- 3.43 Significant OOOH construction is not anticipated for the Eastern Energy Centre. Currently, it is expected that OOOH construction may only be required for some services connections, although this will be of relatively low intensity and therefore of low noise impact.

**Hotel**

- 3.44 The response to Item 28 of LBN's Regulation 22 letter (below) specifically relates to cranes affecting the Transitional Surface during the Hotel construction. Initially this building was envisaged to have a steel frame, which meant that cranes lifting steel beams to the upper floor levels would need to operate at night as they would breach the height limits imposed by the Transitional Surface. The latest assessment has looked further into the options for construction of this building and it is now expected, subject to further engineering study, that the building will be a concrete framed structure. This form of construction typically requires less cranes to assemble than a steel frame as the concrete can be pumped to the desired level. Accordingly, this reduces the amount of out-of-hours working.

**Forecourt (including general Landside Civil and Services Works)**

- 3.45 OOOH construction during certain phases of the Forecourt works is likely to be required for traffic management and services connection purposes. The Forecourt area at the Airport is constrained and there is limited opportunity to divert the main access road into the site. Therefore, it is likely that occasional OOOH construction will be required in order to enable the re-alignment or reconstruction in the access road. The landside civil works also requires significant services diversions. While the new services will typically be constructed in parallel to the existing, there will be points where connections are required. These connections may need to be performed OOOH to maintain service continuity at the Airport.
- 3.46 With regards to night time noise, one area of potential concern is the occurrence of landside civils work in combination with the piling in of KGV Dock (as well as taxiway works) which could give rise to cumulative noise effects. These and other potential noise impacts due to OOOH working are discussed below in response to Item 24 of LBN's Regulation 22 letter.
- 3.47 Where practical, all the other works in the landside and Forecourt area are expected to be constructed during normal operational day time hours. More detail on the precise activities requiring OOOH construction will be confirmed when the Principal Contractor is appointed and the Section 61 agreement is in place with the LBN.

#### **Demolition of City Aviation House (CAH)**

- 3.48 City Aviation House (CAH) needs to be removed to make way for the new Forecourt. The deconstruction of this pre-fabricated office building is likely to require some out-of-hours working. In particular, taking down the top of the building is likely to involve night or weekend working as a crane is likely to penetrate the Transitional Surface. However, where activities are likely to exceed the night time noise threshold of 55dB these will be performed during the daytime weekend hours. This is a modular building which typically aids rapid deconstruction thereby dispensing with noisy percussive demolition techniques (i.e. conventional 'ball and chain' demolition).

#### **LBN Reg 22 Request:**

*28) Section 6.75 of the ES- The issue of craneage needs to be assessed with regard to the transitional surface. A different design could limit or remove the need for night or weekend working.*

#### **Response:**

- 3.49 Paragraph 6.75 (Chapter 6) of the ES is as follows:

*"The Hotel is anticipated to be built out in Year 4 to Year 5 using conventional construction techniques which are unlikely to give rise to significant environmental effects, with appropriate mitigation measures in place. However, were the Hotel is to be built out to its maximum 6 storey height, some out-of-hours working may be necessary because the associated craneage may breach the Airport's transitional surface."*

- 3.50 The Hotel is at outline planning stage and the building height is not yet fixed. The current proposal has a level on the roof parapet of between 27.27m to 32.12m. The height of the Transitional Surface in this area is between 34m to 41.5m. Therefore the height clearance between the structure and the Transitional Surface could vary between 14.23m and 1.88m. Due

to the potential for a low clearance between the structure and the transitional surface a potential for OOOH working has been identified.

- 3.51 The most significant design principle that affects the extent of OOOH construction is the height of the building. The final decision on this is yet to be made as the maximum and minimum building height parameters varies in the application. While the taller building height does have a potential impact on the OOOH working, that impact is small in terms of the duration of OOOH working and, moreover, a taller design does provide increased floor space within the same footprint. This efficient use of space is important on a constrained site like this.
- 3.52 The latest assessment has looked further into the options for construction of this building. It is now expected, subject to further engineering study, that the building will be a concrete framed structure. This form of construction typically requires less cranaage to assemble the frame as the concrete can be pumped to the desired level. This reduces the amount of OOOH working.
- 3.53 The outline nature of the CADP2 application means that some of the design choices that can affect the extent of OOOH working have yet to be made. For example, the use of small piece cladding could limit the need for cranaage.

**LBN Reg 22 Request:**

*23) The ES has not included adequate assessment of evening and night time construction noise, given the duration of the project and the significant works to be undertaken outside normal hours. The assessment should include sleep disturbance and possible use of BS4142 criteria to gauge impact.*

**Response:**

- 3.54 This section of the ES Addendum addresses in greater detail the noise effects of construction activities associated with the proposed CADP during the late evening, night-time and weekend Airport closure periods (out-of-operational hours, abbreviated to OOOH).
- 3.55 BS4142: 1997 Method for rating industrial noise affecting mixed residential and industrial areas is a method for assessing noise of an industrial nature. This is defined as *“noise levels from factories, or industrial premises, or fixed installations, or sources of an industrial nature in commercial premises.”* The assessment of construction noise is outside the scope of BS4142 and therefore this standard should not be used to gauge noise impact.
- 3.56 BS 5228: 2009 “Code of practice for noise and vibration control on construction and open sites – Part 1: Noise” presents guidance on assessing noise from construction sites. Annex E (informative) includes objective guidance to gauge construction noise impact. This informative includes guidance for construction periods of significant duration. The informative also includes guidance for night time works.
- 3.57 In regard to the duration of the project, the British Standard advises that *“the guidance provided below would generally only apply to projects of significant size, and lesser projects might not need to be assessed or might only require general consideration of noise effects and mitigation.”*
- 3.58 The ES presented construction noise limits previously agreed with LBN for the Operational Improvements Project (OIP). The OIP project was significant in its duration and extent and

included significant works to be carried OOOH, including the construction of the East Apron (Stands 21-24) and the Runway Hold 28 at the eastern end of the runway.

- 3.59 The noise assessment in Chapter 8 of the ES tested the construction noise impact against two sets of criteria; one for properties that have already been treated under earlier sound insulation improvement programmes (i.e. the approved Airport Sound Insulation Scheme, SIS) and one for properties who have not accepted sound insulation improvement works under the SIS.
- 3.60 The impact assessment criteria for properties who have not accepted sound insulation works are comparable to those currently used for the CrossRail project and those proposed for the High Speed 2 project. Both of these are projects of significant duration which include significant works to be undertaken outside of normal hours. BAP therefore consider it appropriate to adopt the relevant British Standard (BS 5228) approach. The threshold limit used in the CADP to rate a significant adverse impact (for properties who have not accepted sound insulation works) is 55 dB  $L_{Aeq}$  for night time works. This value is comparable to the World Health Organisation's Interim Target of 55 dB  $L_{night}$  within the Night Noise Guidelines for Europe 2009. In practice, the threshold limit used in the CADP is more stringent than the WHO Interim Target. The WHO value is averaged over an eight hour night, whereas for the CADP, the impact assessment criteria are averaged out over a period of either one hour (evenings and weekends) or 15 minutes (night time).
- 3.61 To consider to what extent the construction noise night-time criterion level of 55 dB  $L_{night}$  might be exceeded as a result of OOOH working, a very detailed noise assessment has been undertaken taking account of the detailed programme information available (as described previously). For each three month period throughout the expected duration of the works, a noise map has been determined and presented in Appendix 3.4. This essentially forms a book of noise maps that provide an indication of how noise will be distributed around the site with time. Where no OOOH working is scheduled to take place, a noise map is included showing no activity. Appendix 3.4 therefore provides a visual aid for understanding the extent to which OOOH working will take place over time.
- 3.62 Each noise map is annotated (where construction activities are identified) to reflect what works are presented and also what plant is assumed in the assessment. An indication of the expected usage or "on-time" of plant items is also presented. The noise maps provide a much more detailed assessment of the evening and night noise periods than previously included in Chapter 8 of the July 2013 ES. These demonstrate that for the substantial majority of the out-of-hours works, predicted noise levels are below the more stringent 55 dB  $L_{Aeq}$  night time criterion.
- 3.63 The construction noise calculations indicate that during some periods, when there is a high level of night time activity, the noise level at the closest receptors lies close to the 55 dB  $L_{Aeq}$  construction noise limit, which represents a significant impact for untreated properties. For instance, the noise map for July 2016 (Year 2) shows predicted levels of noise for extensive night time piling and deck working of both Section 2A and Section 3A and also the initial taxiway works (see 'Mark-up of drawing CA0L-900 Rev E with Working Hours and Piling Zones Annotated' contained at Appendix 3.2.)
- 3.64 In order to mitigate for such temporary, localised impacts, any untreated properties will be re-offered sound insulation to provide mitigation at the receiver. In addition to this, the detailed phasing of the works would be agreed with LBN as part of a Section 61 agreement to limit, as

necessary, the amount of activity per night. This would also consider the cumulative impact of working on multiple areas at night.

- 3.65 Three noise maps are provided for July 2016 (Year 2) (see Appendix 3.4). The first shows the cumulative impact of working in three areas during the night. The second two demonstrate the benefit of limiting the cumulative impact of working in these three separate areas. These show that by splitting the piling and taxiway works to different periods the predicted noise levels outside the nearby receptors can be reduced to below the 55 dB  $L_{Aeq}$  construction noise threshold.
- 3.66 Another period where construction noise is predicted to exceed the 55 dB  $L_{Aeq}$  construction noise threshold at nearby receptors is during 2020 (Year 6) at the time of Dockside Car Park Civil works and Forecourt Works. The noise sources are much closer to the nearby dwellings and therefore noise levels approach the 55 dB  $L_{Aeq}$  level. For these works it is recommended that these are programmed, if reasonably practicable, for the weekend daytime hours rather than the sensitive night time period. Local noise barriers will be used where necessary to protect local residents. These have the potential to reduce noise levels by between 5 and 10 dB.
- 3.67 The detailed construction noise predictions have been made to a receiver height representative of a 1st floor bedroom window since the majority of the nearest dwellings to the construction activity are in the Newland Street area. These are predominately two storey Victorian terrace properties on the North-South running streets. However, there are some three storey properties and a few four storey blocks of flats in this area and these multi-storey buildings will be exposed to higher levels of construction noise due to the reduced noise screening provided by local topography and the DLR barrier. Predictions made at a 2nd and 3rd floor window indicate noise levels approximately 4dB higher compared with 1st floor level in the Newland Street area. It is therefore expected that noise levels may exceed the 55 dB  $L_{Aeq}$  threshold at these higher storey windows at times. It is not reasonably practicable to provide additional noise mitigation in the form of noise screening to protect these higher windows. However, most of these properties will have received sound insulation works under the Airport's sound insulation scheme and those which had previously refused will be re-offered sound insulation works.
- 3.68 The additional information within the noise maps in Appendix 3.4 does provide additional context with regards to the relatively small areas of nearby community which could be affected by significant levels of construction noise. Any significant evening/night time adverse impacts will be limited in time to two main phases. The first will be between mid 2015 to late 2016 for night time deck works. There is then a respite period of over a year until the next phase of significant night time deck works between early 2018 to mid 2019. These two phases are comparable to the two phases of OIP night time works (Runway 28 hold and Apron Extension). These works resulted in a minimal number of complaints to the Airport. During 2020 and 2021 there will be some occasional night time works with the potential to cause significant impacts.

**LBN Reg 22 Request:**

*25) The impact on amenity areas needs to be considered.*

**Response:**

- 3.69 Most of the outdoor and recreational amenity areas are a significant distance from the construction works and will also benefit from incidental noise screening. Table 3.1 below presents

an objective assessment of construction noise based on a peak activity period (July 2016) to the outdoor and recreational area receivers. These are compared against current airborne aircraft noise levels. Royal Victoria Gardens and Shipman Road are outside of the construction noise model. Construction noise levels will be less than 35 dB for these two receptors.

**Table 3.1 - Air Noise Levels at Outdoor Spaces and Recreational Areas (dB L<sub>Aeq,16h</sub>)**

Outdoor Space/Recreational Area	Current airborne aircraft noise (2012)	Worst-case construction noise
Drew Road	63	30
Winifred Street	55	53
Fernhill Street	54	42
Albert Road	55	43
Royal Victoria Gardens	54	<35
New Beckton Park	52	45
Beckton District Park (Playing Fields)	54	45
Shipman Road	58	<35

3.70 The levels in the Winifred Street play area are comparable to the prevailing ambient noise and substantially below the 75 dB L<sub>Aeq</sub> daytime construction noise limit. With the exception of Winifred Street, daytime construction noise levels at the outdoor spaces and recreational area significantly lower than the existing and air traffic noise level and will not result in a significant impact.

**LBN Reg 22 Request:**

26) Section 1.99 of the non-technical summary – does the noise modelling include the screening of the CADP2 proposal?

**Response:**

3.71 Paragraph 1.99 of the ES Non-Technical Summary discusses the noise impact from operational ground noise. The ground noise modelling includes the screening afforded by the CADP buildings. The ground noise model does not include any screening from the proposed Hotel (CADP2). This may result in marginally lower ground noise levels for some properties south of the Hotel.

**LBN Reg 22 Request:**

29) Section 6.103 of the ES – More information is required about where this offsite work is going to be undertaken.

**Response:**

3.72 Paragraph 6.103 (Chapter 6) of the ES is as follows:

*“Excess spoil from pile arisings and other excavations (i.e. which are not suitable for back-fill on the site) are expected to be removed from the site by barge. Based on experience of the previous projects at the Airport, these arisings will need to be disposed of at a licensed tip (to be confirmed*

*by the Contractor). On the previous Eastern Apron project such materials were disposed of directly from the barge to a licensed landfill in the Thames Estuary. Therefore, subject to disposal facilities available to the appointed Contractor, it is anticipated that a similar arrangement could be achieved for the CADP works”.*

- 3.73 The above paragraph does not appear to correspond to “off-site work” per se, so it is unclear what further information is being requested here. It remains the case that the end disposal facility, for pile arisings and other excavations resulting from the CADP works would be subject to future contractual waste disposal arrangements between individual construction companies and waste management operators. However, as a guide, there are a number of active landfill sites along the Thames Estuary which are able to accept inert and non-hazardous spoil by barge delivery, including at Rainham (operated by Veolia),
- 3.74 The consideration of off-site waste disposal impacts in EIA is not commonplace. However, all active waste management and disposal sites are required to operate under an environmental permit, meaning that the risk of them generating significant environmental effects (due to the receipt of waste from the CADP) can be deemed to be negligible. In addition, as described in the waste management section of ES Chapter 6 (paragraphs 6.101 to 6.110) and in Chapter 15: Waste, various measures will be taken to reduce construction waste at source, including the implementation of a CADP specific Site Waste Management Plan (SWMP).

## 4. REGULATION 22: NOISE AND VIBRATION

### a) Regulation 22 Matters- 'further information'

- 4.1 The following sections relate directly to LBN's Regulation 22 request for further information on matters dealt with in ES Chapter 8: Noise and Vibration. It provides a response to items 2-21 of the letter, as provided by the Airport's noise consultants, Bickerdike Allen Partners (BAP).

#### Air Noise

##### **LBN Reg 22 Request:**

*2) Full clarification regarding the significance criteria adopted for the air noise assessment is requested and under what circumstances significant effects are determined.*

##### **Response:**

- 4.2 The significance criteria relating to air noise are set out in the ES Chapter 8 at paragraphs 8.87 to 8.94. They are separated into absolute criteria, based on guidance confirmed recently in the Government's Aviation Policy Framework (July 2012), and relative (change) criteria using a recognised and established semantic scale. To clarify, the significance criteria used in the air noise assessment are set out in Tables 4.1 and 4.2 below. The actual impact is determined from a consideration of all the effects described in the air noise section of Chapter 8 of the ES.

**Table 4.1 – Absolute Air Noise Criteria**

Noise level (dB L <sub>Aeq,16h</sub> )	Subjective Impression	Impact	Significance
54	Negligible	Negligible	None
57	Minor	Minor	Minor
63	Moderate	Moderate	Significant
69	Substantial	Substantial	Significant

**Table 4.2 – Subjective Air Noise Criteria (Replicating Table 8.8 (Chapter 8) of the ES)**

Change in noise level (dB)	Subjective Impression	Impact	Significance
2	Negligible	Negligible	None
2 to 3	Minor	Minor	Minor
3 to 6	Moderate	Moderate	Significant
6 to 9	Substantial	Substantial	Significant
>9	Very Substantial	Very Substantial	Significant

- 4.3 For CADP, given the population exposed to 63 dB LAeq and the fact that more people will become affected by noise as the Airport continues to grow within its permitted limits, irrespective of whether the CADP is built or not, a moderate adverse impact will arise with or without the CADP. The introduction of the CADP, as compared to without it, will however give rise to a negligible change in noise level with a corresponding negligible impact. Taken as a whole, it is envisaged that the air noise impacts associated with the CADP will be of a **minor adverse** nature.

**LBN Reg 22 Request:**

3) An assessment of air noise effects for schools, colleges and hospitals should be provided with specific reference to more relevant guidance such as HTM08-01 and BB93.

**Response:**

- 4.4 Both BB93 and HTM08-01 are applicable to new schools and hospitals respectively. Any new schools or hospitals that may be built and that would be located within the 57 dB  $L_{Aeq,16h}$  noise contours would be designed according to the guidance (or their successors) given in these standards against air noise.
- 4.5 Schools considered in the air noise assessment are listed in Table 8.26, Chapter 8 of the ES. There are no hospitals located inside the 57 dB  $L_{Aeq,16h}$  noise contours, either now or proposed in the future.
- 4.6 The relative change in air noise levels at schools throughout the school day (9:00 to 16:00 hours) between the ‘with’ and ‘without’ development scenario in 2023 are given in Table 4.3

**Table 4.3 - Difference in noise levels between the 2023 ‘with Development’ and 2023 ‘Without Development’ scenario at schools, dB  $L_{Aeq,1h}$**

School	Period commencing, hrs						
	09:00	10:00	11:00	12:00	13:00	14:00	15:00
Britannia Village Primary School	+1	0	+1	+1	+1	0	+1
Calverton Primary School	+1	+1	+1	+1	+2	0	+1
Chestnut Nursery/Tollgate Primary	+1	+1	+1	+1	+2	0	+1
Culloden Primary School	+1	0	+1	+1	+2	0	+1
Discovery Primary School	+1	0	+1	+1	+1	0	+1
Drew Primary School	+1	0	+1	+1	+2	0	+1
Edith Kerrison Nursery /Rosetta Primary	+1	0	+1	+1	+2	0	+1
Faraday School, Trinity Buoy Wharf	+1	0	+1	+1	+1	0	+1
Gallions Primary School	+1	+1	+1	+1	+2	0	+2
Hallsville Primary School	+1	0	+1	+1	+1	0	+1
Hawksmoor Primary School	+1	0	+1	+1	+1	0	+1
Jubilee Primary School	+1	0	+1	+1	+1	0	+1
Langdon Park School	+1	0	+1	+1	+2	0	+1
Leapfrog Day Nursery	+1	0	+1	+1	+1	0	+1
Linton Mead Primary School	+1	0	+1	+1	+1	0	+1
Manorfield Primary School	+1	0	+1	+1	+2	0	+1
My Nursery	+1	0	+1	+1	+1	0	+1
O’Farrels Stage School	+1	0	+1	+1	+1	0	+1
Richard House Children’s Hospice	+1	+1	+1	+1	+2	0	+1
St Joachim’s R.C. Primary School	+1	0	+1	+1	+1	0	+1
St Luke’s CEVA Primary and Nursery School	+1	0	+1	+1	+1	0	+1
St Margaret Clitherow RC Primary School	+1	0	+1	+1	+1	0	+1
Thamesmead School of Dance	+1	0	+1	+1	+1	0	+1
The Royal Docks Community School	+1	0	+1	+1	+2	0	+1
Windrush Primary School	+1	0	+1	+1	+1	0	+1
Winsor Primary School	+1	+1	+1	+1	+2	0	+1
Woolmore Primary School	+1	0	+1	+1	+1	0	+1

School	Period commencing, hrs						
	09:00	10:00	11:00	12:00	13:00	14:00	15:00
University of East London	+1	0	+1	+1	+2	0	+1
Woolwich Polytechnic for Boys	+1	0	+1	+1	+1	0	+1
Storey Road School	+1	0	+1	+1	+2	0	+1
Woodman Community Centre	+1	0	+1	+1	+2	0	+1

1. Values above are noise levels for 2023 with development minus those for 2023 without development.

- 4.7 The changes to noise levels at the schools listed in Table 4.3 between the 2023 with and without development scenarios are no more than 2 dB depending on the time of day and location.
- 4.8 For new build schools, BB93 provides target indoor ambient noise levels in unoccupied spaces due to noise contributions from external sources outside the school (such as air noise) and building services. These target levels are given for types of rooms typically found in schools and are in terms of the  $L_{Aeq,30min}$  noise metric.
- 4.9 For rooms used for teaching, these levels vary between 30 and 40 dB  $L_{Aeq,30min}$  depending on the room type. For a typical classroom the target level is 35 dB  $L_{Aeq,30min}$ .
- 4.10 If it is assumed that a partially open and a closed window provide around 15 dB and 25 dB sound reduction respectively of external noise, then these target levels for a typical classroom become 50 to 60  $L_{Aeq,30min}$  outside the windows of the school.
- 4.11 External air noise levels at schools throughout the school day (9:00 to 16:00 hours) for the 2023 with development scenario are given in Table 4.4. This list excludes those schools given planning permission for their construction subject to air noise from the airport<sup>1</sup> and those that have been treated under the Airport's SIS<sup>2</sup>. These will have been designed or treated to provide an adequate level of protection against external noise in accordance with the relevant standards.

---

1. These were Britannia Village Primary School, Discovery Primary School and Children's Centre, Drew Primary School and the University of East London.

2. Faraday School, Trinity Buoy Wharf, Richard House Children's Hospice, The Royal Docks Community School, Woolwich Polytechnic for Boys, Storey Road School and the Woodman Community Centre.

**Table 4.4 - Air noise levels at Schools, 2023, with development, dB L<sub>Aeq,1h</sub>**

School	Period commencing, hrs						
	09:00	10:00	11:00	12:00	13:00	14:00	15:00
Calverton Primary School	55	51	50	50	49	51	52
Chestnut Nursery School/Tollgate Primary School	48	44	43	43	42	45	46
Culloden Primary School	56	52	51	51	50	53	54
Edith Kerrison Nursery School and Children's Centre/Rosetta Primary School	51	47	47	47	46	48	49
Gallions Primary School	49	45	45	45	44	46	47
Hallsville Primary School	59	55	54	54	53	56	57
Hawksmoor Primary School	58	54	54	54	53	55	56
Jubilee Primary School	57	53	53	53	52	54	55
Langdon Park School	56	52	52	52	51	53	54
Leapfrog Day Nursery	58	54	53	53	53	55	56
Linton Mead Primary School	54	50	49	49	48	51	52
Manorfield Primary School	55	51	50	50	50	52	53
My Nursery	58	54	54	54	53	55	56
O'Farrells Stage School	54	50	50	50	49	51	52
St Joachim's R.C. Primary School	61	57	57	57	56	58	59
St Luke's CEVA Primary and Nursery School	59	55	54	54	53	55	57
St Margaret Clitherow RC Primary School	61	57	57	57	56	58	59
Thamesmead School of Dance	59	55	54	54	53	55	56
Windrush Primary School	59	55	54	54	54	56	57
Winsor Primary School	59	55	54	54	53	55	56
Woolmore Primary School	58	54	53	53	52	54	55

- 4.12 It is reasonable to assume the L<sub>Aeq,1hr</sub> levels at the school around the Airport will not differ greatly from the L<sub>Aeq,30min</sub> levels at the same times during the day.
- 4.13 Based on this assumption, it can be seen that most schools would comply with the typical new build target level for classrooms at all times of the day, with windows closed. Marginal exceedances occur (by 1dB) at only two schools, St Joachim's R.C. Primary School and St Margaret Clitherow R.C. Primary School, and then only during the first hour of the day.
- 4.14 With windows partially open, the BB93 criterion inside a typical classroom is predicted to be exceeded at most schools and at most times of the day. This would however be the case in 2023 even if the CADP were not to be built since, as Table 4.3 shows, only a marginal change in noise level would occur with the CADP as compared to without. In addition, the general ambient noise level in the area is shown to lie generally in excess of 50 dB LAeq (ie. above the target level from BB93) without airborne aircraft noise, as reported in the baseline noise section of ES Chapter 8 (paragraphs 8.74 to 8.85).

- 4.15 To conclude, no hospitals lie within the airport's 57 dB LAeq,16h noise contour. Those schools that lie within the 57 dB contour have either been constructed with appropriate sound insulation works as a planning consent requirement or have qualified for treatment under the Airport's Sound Insulation Scheme (SIS). Schools further afield have been considered and this analysis shows that internal noise levels would satisfy the typical classroom targets set out in BB93 for new build schools provided windows are kept closed. With windows open, these target levels are predicted to be exceeded in 2023 irrespective of whether the CADP proceeds. With the CADP development, the change (increase) in noise level is predicted to be generally less than 2 dB in any hour as compared to the no development case in 2023. Ambient noise levels around the area are however already of a similar magnitude to noise exposure levels predicted from aircraft noise in 2023.

**LBN Reg 22 Request:**

*4) For consistency and to reflect emerging evidence of increased aircraft noise annoyance, LCA is to assess the population highly annoyed using the L metric and the dose-response relationships set out within the EEA Good Practice Guidance on Noise Exposure and Health Effects.*

**Response:**

- 4.16 Details of population "highly annoyed" using the  $L_{den}$  metric is given in Appendix 8.6 of the ES.

**LBN Reg 22 Request:**

*5) A copy of the verification study referenced within Paragraph 8.111 of Chapter 8 is required.*

**Response:**

- 4.17 A copy of A1125.129/AH R02 Air Noise Contour Prediction using INM Derivation of Assumptions May 2013 is included in Appendix 4.1 of this ES Addendum.

**LBN Reg 22 Request:**

*6) If not covered by the verification study report requested in 4 (above), details of the derivation of the adjustments outlined in Table A2.1 is requested along with justification and information to support the INM noise emission substitutions applied in the modelling.*

**Response:**

- 4.18 See response to LBN Reg 22 Item 5) above.

**LBN Reg 22 Request:**

*7) If not covered by the verification study report requested in 4 (above), evidence of measured aircraft dispersion should be provided against the assumptions made in the modelling.*

**Response:**

- 4.19 The departure routes or Standard Instrument Departure routes (SID's) used in the noise contour work represent those described in the UK AIP<sup>3</sup> and determined by the Civil Aviation Authority (CAA) following their airspace appraisal work in 2009<sup>4</sup>.
- 4.20 The dispersion assumptions used to generate the noise contours presented in Appendix 8.2 of the ES follow a standard dispersion pattern used for producing contours for many major UK airports. For The Airport, since the contours are relatively small in relation to other airports, the significance of dispersion is less than at other major UK airports. This is because the 57 dB  $L_{Aeq,16h}$  noise contour barely extends beyond the point where the aircraft commence their turn on departure from the extended runway centreline
- 4.21 An analysis has been undertaken to compare actual departure tracks with those assumed in the noise contouring work undertaken for the ES. Three separate individual weeks or seven day periods of departures have been evaluated during the past six months, both for Runway 09 and Runway 27. The figures comparing the actual tracks with assumed dispersion swathes are shown in Figures 4.2.1 to 4.2.3 in Appendix 4.2 of this ES Addendum.
- 4.22 For departures from Runway 09, it can be seen that the actual tracks fly close to the SID centreline and within the assumed dispersion swathe.
- 4.23 For departures from Runway 27, the situation is different. The actual turn to the north occurs earlier than assumed in the contouring work. The figures show a general dispersion pattern that sits significantly to the east of the defined standard instrument departure route and that used in the noise contouring work. In practice the effect is small as the difference between the modelled and actual departure tracks occurs outside the 57 dB contour. The 54 dB sensitivity contour however would extend slightly further to the north, at its western end, if adjusted to account for the actual departures observed in Figures 4.2.1 to 4.2.3 in Appendix 4.2 of this ES Addendum.
- 4.24 Given the relatively small extent of the noise contours associated with The Airport, both now and in the future, the variation in actual Runway 27 departure flight tracks from the published SID is not considered significant in terms of the interpretation of the noise effects of the CADP development as presented in the ES.

**LBN Reg 22 Request:**

*8) Information should be provided to confirm the meteorological and headwind assumptions adopted within the air noise model. This should also include information relating to the modelled modal split.*

---

3. NATS IAIP (2013) London/City – EGLC Textual data and Charts related to the Airport [Online], Available [http://www.nats-uk.ead-it.com/public/index.php%3Foption=com\\_content&task=blogcategory&id=92&Itemid=141.html](http://www.nats-uk.ead-it.com/public/index.php%3Foption=com_content&task=blogcategory&id=92&Itemid=141.html) [5 Feb 2014] United Kingdom Aeronautical Information Package – London City

4. London City Standard Instrument Departure Change May 2009 – Post Implementation Review, Civil Aviation Authority, 10 November 2010

**Response:**

- 4.25 Meteorological and headwind assumptions used in noise contour modelling work are the default values used in the noise modelling software (INM) and are given in Appendix 8.1 of the ES. These same default values have been used in the noise contour validation studies undertaken at The Airport which involved actual noise measurements of aircraft types at the Airport (see response to 4 above). As a result, corrections have automatically been taken into account for these variables in the noise contouring work. Therefore, a comparison between actual and assumed meteorological and headwind data is not considered relevant for the purposes of the noise assessment presented in the ES.
- 4.26 Modal split data on the direction of use of the runway is based on an average of actual modal split between 2008 and 2012. These are given in Table 4.5.

**Table 4.5 - Annual modal splits**

Year	Runway 10	Runway 28
2012	29 %	71 %
2011	35 %	65 %
2010	42 %	58 %
2009	34 %	66 %
2008	30%	70 %
5 year Average	34 %	66 %

**LBN Reg 22 Request:**

*9) A breakdown of the number of arrivals and departures during the long-term monitoring is requested to allow comparison with the baseline air noise contours.*

**Response:**

- 4.27 This information is given in the Appendix 4.1 in A1125.129/AH R02, May 2013 (See above).

**LBN Reg 22 Request:**

*10) Air noise difference contours are requested to ensure that the key receptors represent the noise level changes. The population exposed to noise level changes is to be presented in 1 dB bands for those exposed to noise levels of at least 57 dB L Aeq, 16hr and 63 dB L*

**Response:**

- 4.28 Difference contours, presented in 1 dB bands for the areas affected by the 57 dB  $L_{Aeq,16h}$  contours and beyond are given in Appendix 4.3 (Figures 4.3.1 to 4.3.7) of this ES Addendum for the following seven Daytime  $L_{Aeq,16h}$  index scenarios:
- Figure 4.3.1 – 2023 Without CADP vs. Baseline
  - Figure 4.3.2 – 2023 Without CADP vs. 2017
  - Figure 4.3.3 – 2023 Without CADP vs. 2019 Without CADP
  - Figure 4.3.4 – 2023 Without CADP vs. 2021 Without CADP

- e) Figure 4.3.5 – 2023 Without CADP vs. 2019 With CADP
- f) Figure 4.3.6 – 2023 Without CADP vs. 2021 With CADP
- g) Figure 4.3.7 – 2023 Without CADP vs. 2023 With CADP

- 4.29 These figures also show the key receptor locations. The change in noise levels at the key receptors was given in Table 8.19 of the ES. This found that comparing the 'With' and 'Without' development cases, there is only a slight increase in noise level resulting from the proposed CADP, in the range of 0.5 to 1.0 dB.
- 4.30 Figures 4.3.1 to 4.3.7 demonstrate that moving further away from the Airport, where the absolute levels of noise will be lower; increases are expected to remain small. These increases are less than 2dB giving rise to no significant adverse impact.

**LBN Reg 22 Request:**

*11) Referring to Section 1.94 of the Non-technical summary – this needs justification, no evidence is supplied that supports the proposition that new aircraft will be quieter when in operation at LCA, and therefore does not support that further fleet renewal will definitely result in a quieter airport post 2023 or will reduce numbers of substantially annoyed under CADP. There is the assumption that these next generation of aircraft will operate in Category A, if the aircraft operate in the lower classification (e.g. B) then more aircraft will be permitted to operate and this has not been assessed. Further details on the Bombardier CS100's anticipated noise impact with operations at London City Airport, taking into account predicted load factor etc. should be provided to the Council.*

**Response:**

- 4.31 The noise contours presented in the ES that relate to the CS100 aircraft have been produced based on confidential information provided to the Airport by Pratt and Whitney (P&W), the aircraft engine manufacturer. Since this information was provided, the CS100 has undergone actual flight tests in Canada<sup>5</sup> which has included noise tests to check whether the noise certification data quoted by P&W is appropriate.
- 4.32 The results of the flight trials undertaken in Canada are available to the public. These include a comparison of P&W specified noise certification data for the P&W 1500 engines fitted to the CS100 against actual trial measurements undertaken at the noise certification points around Mirabel Airport.
- 4.33 The results show a good correlation between the P&W data and actual measured data as can be seen in Table 4.6 below.

---

5. Airbiz (2013) Porter Airlines Proposal Review - Final Report 11466R04, 27 November 2013.

**Table 4.6 – CS100 noise testing results**

Condition	Noise Level (EPNdB)	
	Pratt and Whitney Static Engine Test <sup>(1)</sup>	CS100 Flight Test Vehicle 1 <sup>(2)</sup>
Sideline	85.3	85.2
Flyover	80.1	80.7
Approach	91.0	90.7

1. Carried out with a fully-equipped PW1500G engine.
2. Measured at noise certification points.

4.34 To put this into context with aircraft currently operating at the Airport, the table below compares the noise certification data for various aircraft types against the CS100 data.

**Table 4.7 – CS100 Noise Data vs LCY Aircraft Noise Certification Data**

Condition	Noise Level (EPNdB) <sup>(2)</sup>					
	CS100 Flight Test Vehicle 1 <sup>(1)</sup>	Typical Turbojets			Typical Turboprops	
		Embraer E170	Embraer E190	RJ 100	Fokker 50	Dash 8-400
Sideline	85.2	92.2	92.4	88.2	85.0	84.0
Flyover	80.7	82.2	84.4	84.8	80.9	78.0
Approach	90.7	94.6	92.5	97.5	96.7	94.0

1. Measured at noise certification points.
2. EASA noise certification data.

4.35 It can be seen that, as expected, the CS100 is shown to be quieter than its turbofan counterparts in operation at the Airport. When comparing it to the Category B turboprop aircraft, it is apparent that on sideline departure (which determines the category of an aircraft under the annual categorisation system at the Airport), the CS100 is similar to that of the Fokker 50, a Category B aircraft. However, based on advice from Pratt and Whitney, and since no jets currently fall into this category, this is unlikely to occur in practice and the CS100 would more likely be categorised as Category A.

4.36 If the CS100 were to qualify as a Category B aircraft, this would be good news environmentally, meaning it would be around 3 dB quieter on departure than current turbofan aircraft in operation at the Airport. The number of aircraft movements overall would, however, be limited by the Airport’s infrastructure, as previously described in the Need Statement submitted with the CADP planning application (York Aviation, July 2013). Furthermore, the growth of the Airport is constrained in any event to the permitted overall movement cap of 120,000 aircraft movements.

**LBN Reg 22 Request:**

*12) Table 8.13 - With development is noisier than without, this despite the introduction of quieter aircraft. Clarification is required.*

**Response:**

4.37 With the CADP, the additional infrastructure will provide the capability for the Airport to handle a greater number of aircraft movements. This additional capacity is evident from a comparison of annual movements in 2023. Without the development, the Airport will be constrained to around

97,000 movements per annum. Whereas, with the development in place, 111,000 movements are forecast in 2023. Accordingly, the minor increase in noise between the 'with' and 'without' scenarios is reflective of the additional 14,000 aircraft movements that could be accommodated by 2023 when the CADP is built out. Despite the introduction of quieter new generation aircraft during this time period, these would not be enough to offset the overall increase in aircraft movements.

**LBN Reg 22 Request:**

*13) There is no assessment on the impact on the sound insulation scheme- the delivery of this scheme takes a long time, meaning that residents are exposed prior to the installation of glazing.*

**Response:**

- 4.38 The eligibility contours are currently produced every year as part of the Annual Performance Report. The scheme is delivered to eligible properties in accordance with a timescale agreed with the local authority and set out in detail in the current Section 106 agreement (Planning Ref 07/01510/VAR). The timescales for treatment are devised as far as reasonably possible to ensure that the scheme will be delivered and in place by the time that residents become exposed to noise of 57 dB LAeq, 16h based on an average summer day.
- 4.39 Glazing is rarely installed under the sound insulation scheme except for those few properties that are single glazed. Most properties in the scheme are already double glazed. This will have been required to comply with thermal requirements of the Building Regulations or (in areas such as Canning Town and North Woolwich) replacement double glazed windows will generally already have been installed by the property owners. The Tier 1 scheme offers residents the option of sound attenuated mechanical and passive ventilation as an alternative to opening windows. When consent has been provided by building owners, management, freeholders and occupants these are installed quickly. When consent is not provided by others it is acknowledged that the delivery will take longer. It is relevant however that these properties will invariably already have double glazing.
- 4.40 Tier 2 properties are exposed to higher levels of noise and will be treated as a priority in the new scheme. The current Tier 2 scheme offers a contribution towards the cost of glazing. The property owner's contribution has generally been a factor in owner/occupiers refusing treatment under this scheme. This will not be the case for the new Tier 2 scheme under CADP whereupon no contribution will be required by the owner. Instead, the Airport is offering an enhanced scheme including a 100% contribution for sound improvement works that includes high performance thermal double glazing and acoustic ventilation.

**Air and Ground Noise**

**LBN Reg 22 Request:**

*14) Clarification is sought as to how the average 16-hour day used for the modelling of air and ground noise effects has been derived from the traffic forecasts.*

**Response:**

- 4.41 The daytime average figures have been taken based on the annual average forecast, i.e. the annual forecast divided by 365 days. At London City, the number of aircraft movements based upon an annual average day is approximately equal to that derived from the summer average day as there is no seasonal peak.

**LBN Reg 22 Request:**

*15) Clarification is requested on the interaction of noise level exposure and change in relation to the ground noise assessment.*

**Response:**

- 4.42 The Table below presents the predicted air and ground noise for a number of receptors.

**Table 4.8 - Air and ground noise levels, 2023 with development scenario**

Receptor	Ground noise dB $L_{Aeq,16h}$	Air noise dB $L_{Aeq,16h}$	Combined air and ground noise dB $L_{Aeq, 16h}$
Camel Road	53	66	66
North Woolwich (north) Woodman Street/Brixham Street	51	60	61
Storey Road School	51	61	61
University of East London	58	66	67

- 4.43 It can be seen from the table above that air noise is the dominant noise source. Ground noise levels are between 8 and 13 dB (A) lower than airborne aircraft noise and, as such, ground noise does not significantly contribute to the overall noise environment at these key locations.

**LBN Reg 22 Request:**

*16) Information regarding the potential diurnal changes in aircraft movements due to CADP is requested.*

**Response:**

- 4.44 The diurnal variation in air noise has already been presented in Appendix 8.5 of the ES. Hourly ground noise calculations have been made for three representative receptors, which are provided below. The Drew Road receptor is close to the Terminal building, Storey Road School is close to the eastern end of the runway on the south side of KGV Dock and the University of East London is at the eastern end of the runway to the north of Royal Albert Dock.

- 4.45 The tables below show the diurnal changes in aircraft ground noise at these three receptors.

**Table 4.9 - Hourly ground noise predictions at ground noise receptor A -  
Drew Road (dB L<sub>Aeq,1h</sub>)**

Start Hour	2012 Baseline	2023 Without development	2023 With development	Change : With – without dev.
06:00	43.4	45.5	45.6	0.1
07:00	53.1	54.2	54.2	0.0
08:00	53.7	54.1	55.2	1.1
09:00	52.8	54.3	55.1	0.8
10:00	50.6	51.1	51.2	0.1
11:00	48.1	50.0	50.7	0.7
12:00	47.6	50.0	50.7	0.7
13:00	47.6	48.8	49.8	1.0
14:00	49.7	52.0	51.8	-0.2
15:00	49.0	52.0	52.9	0.9
16:00	49.7	52.0	52.8	0.8
17:00	51.4	53.0	54.0	1.0
18:00	53.7	54.1	55.1	1.0
19:00	52.6	54.0	54.4	0.4
20:00	50.6	50.6	50.1	-0.5
21:00	38.6	41.5	41.7	0.2
22:00	0.0	0.0	0.0	0.0

**Table 4.10 - Hourly ground noise predictions at ground noise receptor F -  
Storey Road School (dB L<sub>Aeq,1h</sub>)**

Start Hour	2012 Baseline	2023 Without development	2023 With development	Change: With – Without Dev.
06:00	41.2	43.3	45.5	2.2
07:00	50.9	52.0	52.6	0.6
08:00	51.4	51.9	53.6	1.7
09:00	50.5	52.1	53.5	1.4
10:00	48.1	48.9	49.8	0.9
11:00	45.9	47.8	49.4	1.6
12:00	45.4	47.8	49.4	1.6
13:00	45.4	46.3	48.6	2.3
14:00	47.5	49.7	50.4	0.7
15:00	46.8	49.7	51.4	1.7
16:00	47.5	49.7	51.3	1.6
17:00	49.2	50.8	52.4	1.6
18:00	51.4	51.9	53.5	1.6
19:00	50.4	51.8	52.8	1.0
20:00	48.4	48.4	48.9	0.5
21:00	36.4	39.3	43.4	4.1
22:00	0.0	0.0	0.0	0.0

**Table 4.11 - Hourly ground noise predictions at ground noise receptor H - University of East London (dB L<sub>Aeq,1h</sub>)**

Start Hour	2012 Baseline	2023 Without development	2023 With development	Change: With – Without Dev.
06:00	49.3	51.5	52.8	1.3
07:00	59.0	60.2	59.9	-0.3
08:00	59.6	60.0	60.9	0.9
09:00	58.7	60.3	60.9	0.6
10:00	56.2	57.0	57.2	0.2
11:00	54.1	55.9	56.7	0.8
12:00	53.6	55.9	56.7	0.8
13:00	53.6	54.5	56.0	1.5
14:00	55.7	57.9	57.8	-0.1
15:00	55.0	57.9	58.8	0.9
16:00	55.7	57.9	58.6	0.7
17:00	57.3	59.0	59.8	0.8
18:00	59.6	60.0	60.9	0.9
19:00	58.5	59.9	60.2	0.3
20:00	56.6	56.5	56.2	-0.3
21:00	44.6	47.5	50.5	3.0
22:00	0.0	0.0	0.0	0.0

- 4.46 For most periods of the day, the change in ground noise in 2023 With Development as compared to Without Development is less than 1 dB. For some hours however, most noticeably at 21.00 hours, there is an increase in noise level of between 3 to 4 dB at the east end of the Airport. This occurs due to a virtual doubling in this hour from the very few movements which occur during this period without the CADP. However, absolute levels of ground noise remain low at this time.

### Ground Noise

#### **LBN Reg 22 Request:**

*17) Clarification is requested on the derivation of ground noise reference levels adopted within the ground noise modelling and how activities at each stands have been proportioned.*

#### **Response:**

- 4.47 The ground noise reference levels are presented in ES Appendix 8.7 – Ground noise assumptions. These reference noise levels are based on short term measurements of individual activities and Auxillary Power Unit (APU) use at the Airport and corrected to a reference distance of 152m. Long term (16hour) ground noise predictions have been checked using measurements. This was carried out as required under the current Section 106 and is reported to LBN in BAP 2013 Ground Noise Study<sup>6</sup>.
- 4.48 All corporate jets are assumed to use the Jet Centre stands at the western end of the Airport. All other aircraft were split equally across the available stands.

<sup>6</sup> BAP reference A9655-R01-CFC dated 22nd August 2013

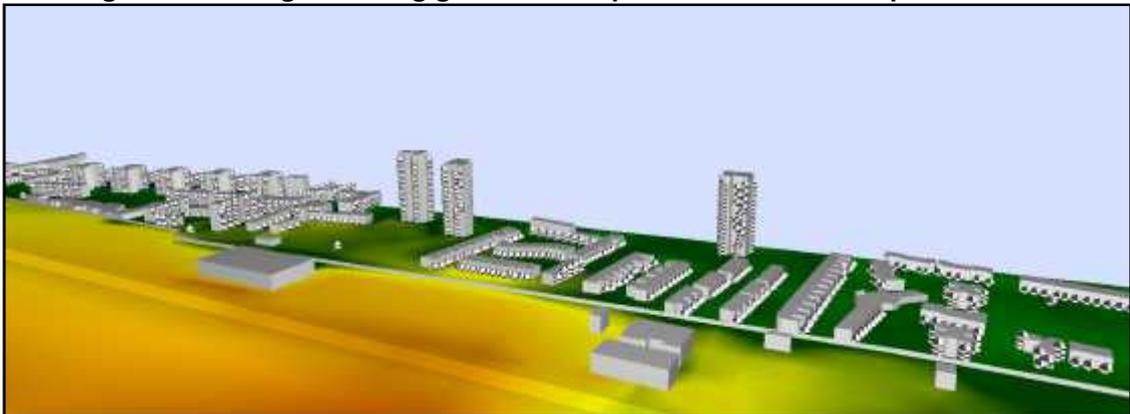
**LBN Reg 22 Request:**

*18) Information should be provided as to the noise exposure at heights above 4m to account for elevated receptors south of the airport.*

**Response:**

- 4.49 There are many low, medium and high rise flats to the south of the Airport. To provide a representative assessment of ground noise levels in the local communities, a substantial number of assessment locations have been used (around 2,400). These include receptors at all floor heights, as shown in Figure 4.1. This is a view of the Silvertown/ North Woolwich area. It is presented to show the heights of the receptor points (black and white spheres) which can be seen in front of the buildings.

**Figure 4.1 – Image showing ground noise prediction model receptors**



- 4.50 To provide more information as requested, ground noise contours have also been produced at 5 dB bands for 3rd floor, 6th and 9th floor receivers. The 3rd and 6th floor receiver locations are representative of apartment windows in the Woodman Street, Camel Road and UEL areas. The 9th floor receivers are representative of higher floors in the Dunedin, Westland and Queensland Houses. These are the three tower blocks visible in Figure 4.1. The resulting ground noise contours are provided in Appendix 4.4 of this ES Addendum.
- 4.51 These illustrate the predicted absolute ground noise levels at higher levels. An objective assessment of ground noise at all representative receiver heights was presented in the ES.

**LBN Reg 22 Request:**

*19) The ground noise contours should be reproduced in the 5 dB band presented within the key to allow ease of interpretation.*

**Response:**

- 4.52 The ground noise contours have been reproduced in 5 dB steps as requested. These illustrate the predicted absolute ground noise levels at first floor level. An objective assessment of ground noise at all representative receiver heights was presented in the ES. The resulting figures are given in Appendix 4.5 of this ES Addendum.

**LBN Reg 22 Request:**

20) Clarification is requested regarding the use of the runway and parallel taxiways in the 'with CADP' in 2021 and 2023 with regard to the ground noise assessment.

**Response:**

4.53 The modelled use of the parallel taxiway is shown in Appendix 4.6 for the first phase (2019) as well as the 'with CADP' 2021 and 2023 scenarios.

**LBN Reg 22 Request:**

21) An assessment of noise effects in the periods outside of the La10, 18hr should be provided for the new access road.

**Response:**

4.54 Hourly road traffic noise predictions have been made for the No. 29 Woodman Street receiver which is the closest receptor to the new access road. The results of this analysis are presented in the table below.

**Table 4.12 - Hourly road traffic noise predictions for new access road, 2023 with development**

Start Hour	Traffic noise level, dB		Traffic flow/hour
	L <sub>A10,1h</sub>	L <sub>Aeq,1h</sub>	
00:00	N/A	N/A	32.7
01:00	N/A	N/A	20.1
02:00	N/A	N/A	12.6
03:00	N/A	N/A	23.9
04:00	54.0	52.0	79.2
05:00	60.7	58.7	365.7
06:00	62.1	60.1	495.2
07:00	62.6	60.6	555.5
08:00	61.7	59.7	453.7
09:00	60.4	58.4	339.3
10:00	59.3	57.3	260.2
11:00	59.4	57.4	269.0
12:00	60.7	58.7	360.7
13:00	60.9	58.9	378.3
14:00	60.8	58.8	368.3
15:00	61.3	59.3	412.2
16:00	62.1	60.1	499.0
17:00	62.6	60.6	564.3
18:00	62.2	60.2	511.5
19:00	61.3	59.3	418.5
20:00	60.3	58.3	333.1
21:00	59.0	57.0	242.6
22:00	53.9	51.9	76.7
23:00	N/A	N/A	42.7

Notes: These include the standard LA10,18hr period (0600-2400). The periods outside 06:00-24:00 are highlighted. For much of this time (23:00-04:00) the predicted traffic flow is below 50 vehicles per hour which is a low flow limit below which the calculation procedure (CRTN) is no longer valid. Assuming this low baseline however predicts that the road traffic noise level would be 52 dB LA10,1hr or 50 dB LAeq,1hr during these periods. The total night time traffic noise level will therefore be less than 55 dB LAeq,8hr.

- 4.55 No impact assessment criteria were presented for absolute night time road traffic noise in the ES. However, a reasonable threshold for a significant adverse impact would be 57 dB LAeq,8h. This is the threshold for Category C in the recently withdrawn PPG24. Although no longer current, the Noise Exposure Categories are still being used as an indicator of noise impact. Therefore, from this assessment no significant adverse noise impact is expected from night time use of the new access road.

## 5. REGULATION 22: AIR QUALITY

---

### a) Regulation 22 Matters- 'further information'

- 5.1 Requests for further information in relation to Air Quality (Chapter 9 of the ES) have been responded to by Air Quality Consultants (AQC), as set out below.

**LBN Reg 22 Request:**

*30) At Section 1.128, the assessment should include an assessment of the change in emissions from the development.*

**Response:**

- 5.2 Paragraphs 9.234 and 9.235 of Chapter 9 of the ES provide an assessment of the change in total emissions associated with the CADP proposals. Accordingly, Paragraph 1.132 of the NTS has been updated to include such an assessment as follows:

**“The CADP proposals would generate an increase in Airport-related NOx emissions of 22% in 2019, and 35% in 2023, when compared to the Without Development scenario; this increase is in broad proportion to the number of passengers and scheduled aircraft movements. However, it must be borne in mind that a large proportion of these emissions are released at height (up to 915 metres) and will have little impact on ground-level concentrations”.**

**LBN Reg 22 Request:**

*31) Further justification regarding the selection of the study area and the air quality impacts beyond its boundary should be provided.*

**Response:**

- 5.3 The study area for the assessment of operational impacts is defined in Paragraph 9.46 of Chapter 9 of the ES; the study area encompasses a 1km radius around the runway, and the extent of the road network as defined within the TA.
- 5.4 In terms of emissions arising from within the Airport boundary, ground-based sources will have an imperceptible impact beyond a distance of a few hundred metres. Aircraft departing from, and approaching the Airport, will be at altitude (several hundreds of metres) at 1km distance, and emissions from aircraft engines will make an imperceptible contribution to ground-level concentrations. This was noted in the first AQEG report<sup>7</sup> which states *“emissions which occur between 100m and 1000m contribute little to ground-level concentrations”*. This is reflected in the nitrogen dioxide contours provided in Appendix 9.7 of the ES, which show little contribution from Airport sources beyond the Airport boundary.

---

<sup>7</sup> Air Quality Expert Group (2004) Nitrogen Dioxide in the United Kingdom.

- 5.5 As referred to a paragraph 11.20 (Chapter 11) of the ES, the extent of the road network considered within the Transport Assessment (TA) was set out in the Scoping Note issued to the authorities on 3<sup>rd</sup> December 2012. The scope of the TA was subsequently discussed at the pre-application meeting held on 21<sup>st</sup> December 2012. No concerns were raised by LB Newham or TfL.
- 5.6 The specific receptors included in the Air Quality assessment were set out in an email to LB Newham (Robin Whitehouse and Jennifer Bishop) on 19<sup>th</sup> December 2012, in response to issues raised within the LBN's Scoping Opinion issued on the 4<sup>th</sup> December. This indicated that the receptors had been selected to follow the road network included in the TA and other locations within approximately 1km of the main runway.
- 5.7 The road links included in the assessment are described in Figure 9.3 (Chapter 9 of the ES), with the traffic data summarised in Appendix 9.4, Tables A4.14 to A4.17. Road links which take traffic onto the wider network include Royal Docks Road, Pier Road, North Woolwich Road (West) and Victoria Road. The incremental change (as a percentage of 24-hr Annual Average Daily Traffic Flows (AADT)) due to the CADP proposals on these road links is shown in Table 5.1 below.

**Table 5.1: Summary of Incremental Change to AADT Flows**

Road Link	Incremental Change (% of AADT)		
	2019	2021	2023
Royal Docks Road	4.6%	5.7%	5.6%
Pier Road	0.4%	0.6%	0.7%
N Woolwich Rd (west)	4.9%	6.8%	8.2%
Victoria Dock Road	2.2%	3.9%	4.6%

- 5.8 Guidance issued by EPUK<sup>8</sup> suggests that an air quality assessment is only necessary where the 24-hr AADT flow changes by more 5% (within an AQMA). Incremental changes of 5.6% and 8.2% change are predicted to occur in 2023 on Royal Docks Road and North Woolwich Road (West) respectively, but traffic beyond these links will become increasingly diluted with greater distance from the Airport. Vectos (the transport consultants for CADP) have advised that it is extremely unlikely that incremental changes above 5% would occur on any other road links.
- 5.9 The air quality assessment included receptor locations on both Royal Docks Road (R10 and R16) and North Woolwich Road (West) (R13). The incremental change to annual mean nitrogen dioxide concentrations at these receptor locations in all future year scenarios is imperceptible<sup>9</sup>, and does not exceed 0.4 µg/m<sup>3</sup> (see Tables 9.24, 9.28 and 9.33 (Chapter 9) in the ES). Any incremental change to annual mean nitrogen dioxide concentrations on roads across the wider road network is likely to be lower, and it is concluded that any effects beyond the defined study area would be insignificant. Therefore, the study area used for the assessment of air quality impacts is considered appropriate and robust from an EIA point of view.

<sup>8</sup> EPUK (2010) Development Control: Planning for Air Quality.

<sup>9</sup> Any change less than 1% of the objective value (i.e. 0.4 µg/m<sup>3</sup>) is widely considered to be imperceptible.

**LBN Reg 22 Request:**

32) LCA should confirm whether there are any locations with relevant exposure, that are not already modelled as discrete receptors, where the annual mean NO<sub>2</sub> Air Quality Objective is shown to be exceeded.

**Response:**

- 5.10 In addition to the specific receptors identified in Table 9.6 of Chapter 9 of the ES, annual mean nitrogen dioxide concentrations were predicted across the wider study area, which are shown as concentration isopleths in Appendix 9.7 (Figures A7.1-A7.9) to the ES. These figures demonstrate that there are no predicted exceedences of the annual mean air quality objective at any location with relevant exposure.

**LBN Reg 22 Request:**

33) London Plan Policy 7.14B sets out that development proposals should be at least Air Quality Neutral and not lead to further deterioration of existing poor air quality. LCA is asked to demonstrate whether the CADP proposals are Air Quality Neutral.

**Response:**

- 5.11 Policy 7.14B(c), as defined in the 2010 London Plan, requires that development proposals should be “at least ‘air quality neutral’ and not lead to further deterioration of existing poor air quality (such as designated Air Quality Management Areas (AQMAs))”. The 2010 Mayor’s Air Quality Strategy also addresses the issue of ‘air quality neutral’ and states that “GLA will work with boroughs to assist in the development of methodologies that will allow an accurate assessment of the impacts of the emissions of new developments” (Para 5.3.19).
- 5.12 On 30<sup>th</sup> July 2013, the GLA published its draft Supplementary Planning Guidance (SPG) on Sustainable Design and Construction. This consultation SPG is intended to update the previous 2006 version, and sets out, for the first time, guidance on how the air quality neutral policy should be implemented<sup>10</sup>. The draft SPG was published after the planning application for the CADP was submitted (on 26<sup>th</sup> July 2013) and was not therefore taken into account by the ES. It is also important to note that the draft SPG has not yet been adopted by the Mayor, and the guidance set out therein is subject to change following the consultation period.
- 5.13 The guidance related to air quality neutral follows a tiered approach, such that all developments are expected to comply with minimum standards for gas boilers, combined heat and power (CHP) and biomass. Compliance with “air quality neutral” is then founded on emissions benchmarks that have been derived for both building (energy) use and road transport. Developments that exceed the benchmarks are required to implement on-site or off-site mitigation to offset the excess emissions.
- 5.14 In terms of the minimum standards, the CADP proposals comply with the draft SPG. As set out in Chapter 9 of the ES, ultra-low NO<sub>x</sub> boilers (<40 mg NO<sub>x</sub>/kWh) would be installed, and abatement

<sup>10</sup> The guidance on the implementation of the air quality neutral policy is based on a report prepared by Air Quality Consultants on behalf of GLA. Available on GLA website, [www.london.gov.uk](http://www.london.gov.uk).

(95% catalytic reduction) of NO<sub>x</sub> emissions would be applied to the CHP (to achieve an emission rate of <40 mg NO<sub>x</sub>/Nm<sup>3</sup>, as compared with the proposed GLA standard of 150 mg/Nm<sup>3</sup>).

- 5.15 The application of the air quality neutral guidance to airports is not straightforward. The Building Emission Benchmarks (BEBs) and Road Transport Emission Benchmarks (TEBs) have only been derived for a limited number of land-use classes. Whilst some of these land-use classes form part of the CADP Proposals (e.g. Retail (A1), Restaurants and Cafes (A3), Hotels (C1) etc.), much of the Gross Internal Floor Area (GFA) is *Sui Generis*. In addition, road transport movements generated by, for example, retail development within the Airport, are unlikely to be well-characterised by other retail development across London.
- 5.16 Emissions from aircraft are not included within the air quality neutral assessment as the supporting report to the SPG explains that “*the responsibility for mitigation/offsetting could not reasonably lie with the airport operator as they have very limited control over what aircraft are used by the airlines*”.

*Building Emission Benchmarks (BEB)*

- 5.17 The CADP proposals would provide an additional 33,810 m<sup>2</sup> (Gross Floor Area) of Terminal and Pier floorspace. At this stage, the precise allocation of space to different uses has not been determined, but based on preliminary information provided by Pascall + Watson, and with reference to the current use of floorspace, the following assumption has been made for the CADP1 proposals:
- a) A1 Shops – 1,376 m<sup>2</sup>;
  - b) A3 Restaurants and Cafes – 2,610 m<sup>2</sup>;
  - c) B1 Business – 10,481 m<sup>2</sup>;
  - d) B8 Storage – 2,570 m<sup>2</sup>; and
  - e) *Sui Generis* – 16,773 m<sup>2</sup>.
- 5.18 In addition, the Hotel proposed by CADP2 would provide an additional 14,000 m<sup>2</sup> of C1 floorspace.
- 5.19 The building NO<sub>x</sub> emissions associated with the CADP proposals are based on a number of worst-case assumptions within Chapter 9 of the ES as follows:
1. Annual gas usage for the boilers would increase in line with passenger movements;
  2. NO<sub>x</sub> emissions from the new boilers would be consistent with standard EMEP/EAA emission factors; and
  3. The CHP plant (560 kWt) would operate at full load on a continuous basis.
- 5.20 Whilst this is an appropriate, conservative approach within the ES, it will significantly overestimate NO<sub>x</sub> emissions. For the purpose of this assessment, the following, revised assumptions have been made:

1. Annual gas usage for the new terminal and piers would be 1,241,455 kWh (based on information provided by Atkins Global);
2. NOx emissions from the new boilers would comply with the “ultra-low NOx standard” or <40mg/kWh; and
3. The CHP engines have been revised to provide 480 kWt, operating for 5,000 hours per annum (as set out in the Addendum to the Energy and Low Carbon Strategy).

5.21 As there are no benchmark emissions for *Sui Generis* use, it has been assumed that this floorspace is given over to Class A1 use (which has the strictest benchmark value). The calculation of the **Total Benchmarked Building Emission** is shown in Table 5.2 below.

**Table 5.2: Calculation of Total Benchmarked NOx Emissions**

Land Use	GFA (m <sup>2</sup> )	BEB (gNOx/m <sup>2</sup> /annum)	Benchmarked Emissions (kg/annum)
A1	1,376	14.4	19.8
A3	2,610	47.9	125.0
B1	10,481	19.6	205.4
B8 <sup>a</sup>	2,570	19.1	49.1
C1	14,000	45.2	632.8
<b>Sui Generis (A1)</b>	16,773	14.4	241.5
<b>Total Benchmarked Building Emission</b>			<b>1,273.7</b>

<sup>a</sup> The B8 use is for the provision of storage for the A1 (retail) use, and not general warehousing. The B8 use could be assumed to be part of A1, but this would have little effect of the calculated Total Benchmarked Building Emission, and would not affect the outcome.

5.22 The **Total Building NOx Emission** can be calculated from the information set out above, and from that provided in Appendix 9.4, Table A4.23 of the ES:

- a) **Boilers** - 1,241,455 kWh/annum and <40 mgNOx/kWh = 49.7 kgNOx/annum
- b) **CHP** - 0.06 gNOx/second<sup>11</sup> and 5,000 operational hours at 100% load = 1080 kgNOx/annum
- c) **Total** = 49.7 + 1080 = 1129.7 kg/annum

5.23 As the **Total Building NOx Emission** is less than the **Total Benchmarked Building Emission**, it can be concluded that the CADP proposals comply with the “air quality neutral” principle, and no further mitigation is required.

*Road Transport Emission Benchmarks (TEB)*

5.24 The TEBs, as specified in the draft SPG, are based on the number of trips generated by different land use classes, together with the associated trip lengths and vehicle emission rates. Such trip generation data are normally obtainable from the TA, as this is the basis for the calculation of AADT data. However, for the CADP proposals, a bespoke, first principle approach was used, with the trip data derived from passenger profiles (provided by York Aviation) and staff numbers. It is thus not possible to derive trip rates by land use class from the TA.

- 5.25 Where TEBs have not been derived for specific land-use classes, it is possible to compare scheme-related trip rates with benchmarked trip rates. The derivation of the benchmarked trip rates is shown in Table 5.3 below. For *Sui Generis* use, a weighted trip rate has been derived from land use classes A1, A3, B1, B8 and C1<sup>12</sup>. The average benchmarked trips/annum has been divided by the Gross Floor Area (GFA) of the development (i.e. 33,810 m<sup>2</sup>).

**Table 5.3: Derivation of Benchmark Trip Rates**

Land Use	Trips/m <sup>2</sup> /annum	GFA (m <sup>2</sup> )	Total Benchmarking Trips/Annum
<b>A1</b>	131	1,376	180,256
<b>A3</b>	170	2,610	443,700
<b>B1</b>	18	10,481	188,658
<b>B8<sup>a</sup></b>	6.5	2,570	16,705
<b>C1</b>	6.9	14,000	96,600
<b>Sui Generis</b>	27	16,773	452,281
<b>Average Benchmark Trip Rate/GFA m<sup>2</sup>/annum</b>			<b>40.8</b>

<sup>a</sup> The B8 use is for the provision of storage for the A1 (retail) use, and not general warehousing. The B8 use could be assumed to be part of A1, but this would increase the Average Benchmark Trip Rate/GFA m<sup>2</sup>/annum and would have no effect on the outcome of the assessment.

- 5.26 The traffic data set out in Appendix 9.4 Table A4.17 of the ES shows that the CADP proposals would generate an additional 4,391 (LDV) movements per operational day, based on changes to AADT flows on Hartmann Road. Taking into account the GFA of the CADP proposals, this is equivalent to 40.5 trips/m<sup>2</sup>/annum.
- 5.27 As the **Transport Trip Rate** is lower than the **Benchmark Trip Rate**, it can be concluded that the CADP proposals comply with the “air quality neutral” principle, and no further mitigation is required.
- 5.28 The calculations above are related to building and landside emissions only, and the draft SPG provides no guidance on how to account for emissions arising airside. Table 9.19 in Chapter 9 of the ES sets out the summary emissions for the 2012 Baseline. Ground Support Equipment (GSE) (including airside vehicles and MGPUs) accounts for about 7.0 tonnes of NO<sub>x</sub>; the MGPUs contribute about 6.4 tonnes of this total. The CADP proposals will introduce Fixed Electrical Ground Power (FEGP) to all stands (other than at the Jet Centre) which will practically eliminate the use of MGPU use to occasions where there is FEGP failure. NO<sub>x</sub> emissions from GSE will be substantially lower in future years with the CADP proposals (as demonstrated in Table 9.39 (Chapter 9) of the ES).

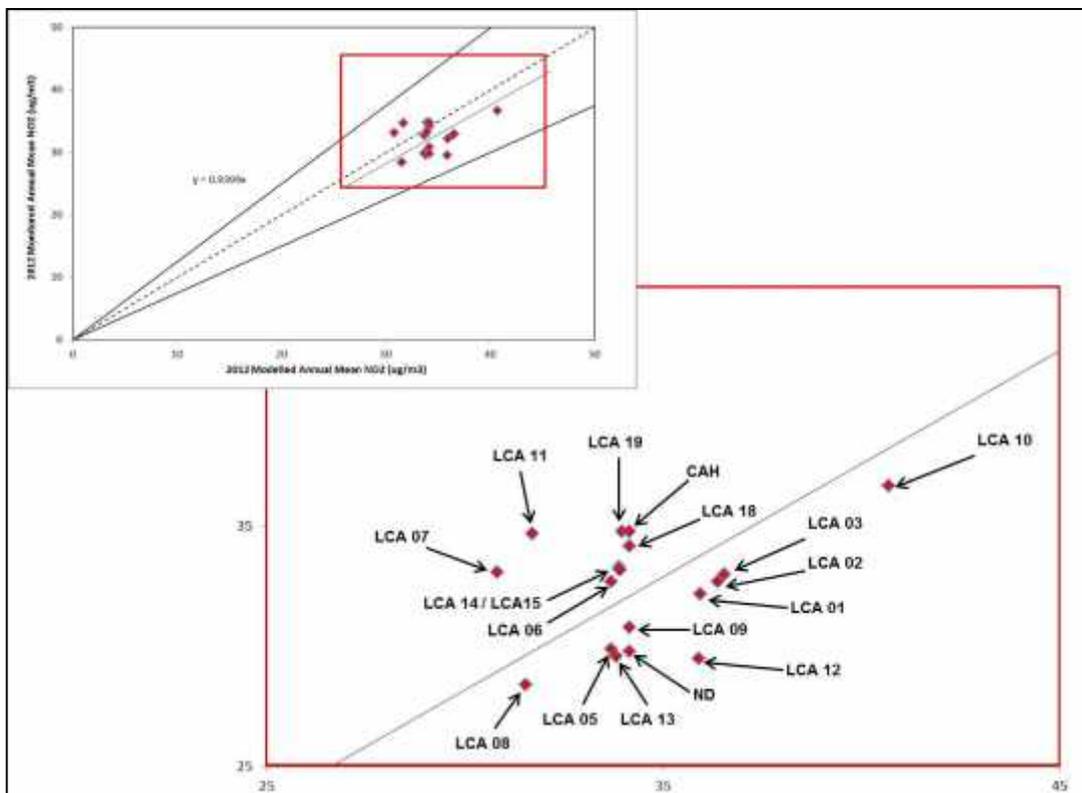
<sup>12</sup> Due to the wide variation in trip rates, it would not be appropriate to select the lowest value. The trip rates for each land use class have been weighted according to GFA and used to calculate an average value for Sui Generis.

**LBN Reg 22 Request:**

34) The overall approach adopted for model verification is accepted, although the adjustment factor could be affected by the choice of monitoring sites included in the analysis. It is not clear which data points in Figure 9.4 relate to which monitoring sites, or whether they are locations relevant in terms of exposure. Further clarification is sought to provide confidence that the modelled concentrations are not under-predicted at locations of relevant exposure beyond the airport boundary.

**Response:**

- 5.29 ES Chapter 9, Figure 9.4 is reproduced below with each data point labelled to indicate the monitoring location. This should be compared with Table 9.9 in Chapter 9 of the ES, which describes each monitoring location



- 5.30 The principal locations of relevant exposure beyond the Airport boundary include the properties to the south (LCA1, LCA2, LCA8) and to the north (LCA5, LCA6). For the majority of these data points the figure above indicates that the model is over-predicting annual mean nitrogen dioxide concentrations.

**b) Other matters**

- 5.31 In response to issues raised by the GLA in its Stage 1 response on the CADP proposals, an Addendum to the Energy and Low Carbon Strategy has been prepared by Atkins. This introduces a number of changes, such that the size of the CHP engines in the Eastern Energy Centre has been reduced from a total capacity of 560 kWt to 480 kWt. The revised Strategy also confirms that the CHP engines will run for about 5000 hours per year.

- 5.32 The assessment of emissions from the Eastern Energy Centre in Chapter 9 of the ES was based on 560 kWt CHP, operating at full (100%) load for 8760 hours per annum. A conservative approach in the ES has therefore been adopted, and the proposed revision to the Strategy will have no material effect on the conclusions of Chapter 9 of the ES.
- 5.33 As described in Section 3, ES Chapter 6: Development Programme and Construction has been updated and the numbers of HGV movements have been revised in line with the more detailed programme that is now available. There is no change to the number of HGV movements in Years 1 to 3, but the peak number of monthly HGV movements in Years 4 to the middle of Year 7 has increased from 1,252 (626 return trips) to 1,748 (874 return trips). Assuming a 30-day working month, this equates to a change from an average of 42 (21 return trips) to 58 (29 return trips) movements per day, during the peak period.
- 5.34 As described in Paragraph 9.179 of Chapter 9 of the ES, the construction traffic movements in 2019 (Year 5) and 2021 (Year 7) have been included within the operational traffic movements for those years, and have thus been explicitly considered within the operational assessment. An increase in the number of average daily HGV movements from 42 to 58 is indiscernible, and would have no material effect on the predicted concentrations or the conclusions of the air quality assessment, as set out in Chapter 9 of the ES.

## 6. REGULATION 22: SURFACE TRANSPORT AND ACCESS

---

### a) Regulation 22 Matters- 'further information'

- 6.1 The following responses to the Regulation 22 Matters relating to surface transport and access have been responded to by the CADP's Transport Consultants, Vectos. These matters were reported in Chapter 11 of the ES and, more fully, within the Transport Assessment (TA) which accompanied the ES as part of the CADP planning application submission.

#### **LBN Reg 22 Request:**

*35) The assessment does not consider the impacts of construction workers using the DLR during the construction period.*

#### **Response:**

- 6.2 Paragraphs 11.34-11.38 of Chapter 11 of the ES consider the effects of the increase in DLR passenger numbers arising from the CADP on 'the Airport Route' of the DLR network. These and other effects on public transport capacity are further considered in the TA which constitutes Appendix 11.1 of the ES.
- 6.3 A separate detailed assessment of the impact of construction workers using the DLR was not part of the ES because the impact of these worker journeys would be insignificant by comparison to the increase in passenger numbers. However, for the sake of completeness, this further analysis has been provided below.

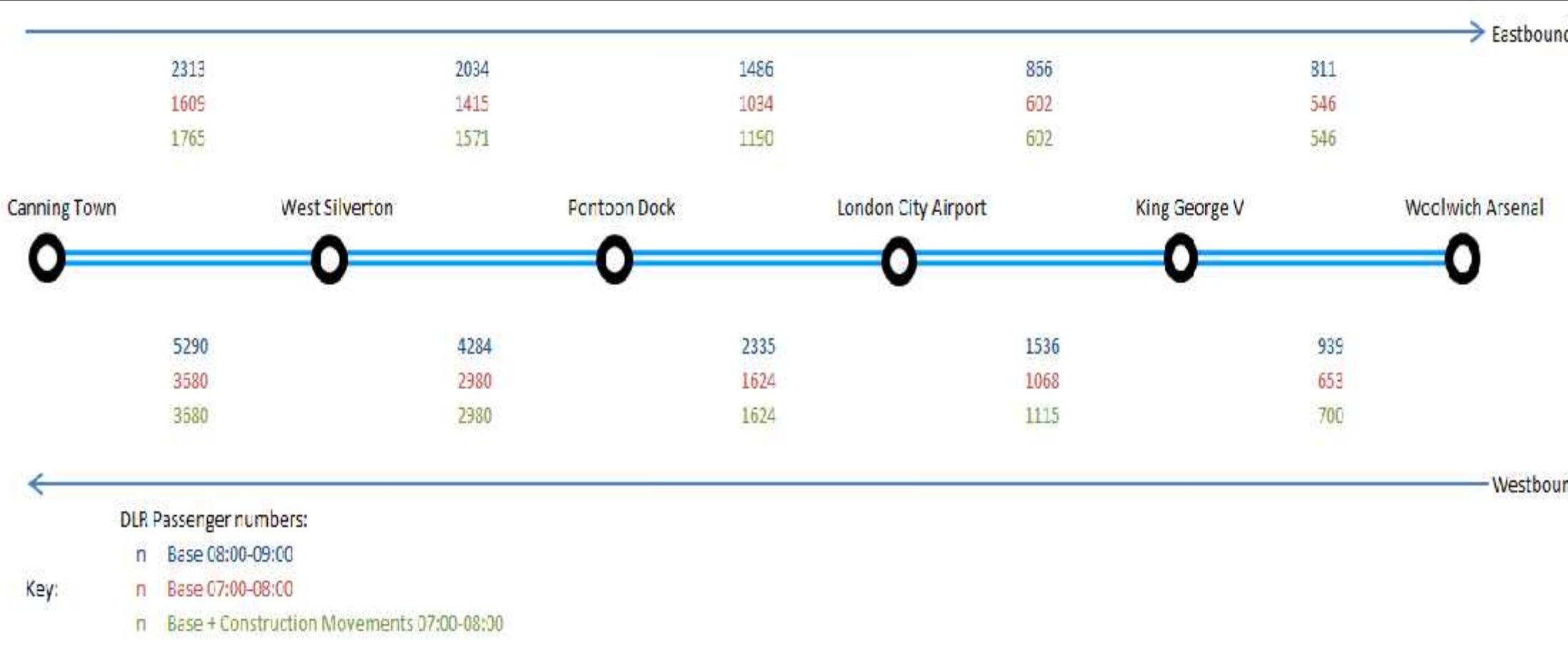
#### **Impact of Construction Workers on the DLR**

- 6.4 Due to the nature of the construction works, as described in ES Chapter 6 (as revised) and Section 3 of this ES Addendum, construction workers will typically operate on a shift pattern, with different specialist teams working during both the day and night time. This will have the effect of distributing construction worker journeys during a 24 hour period at various intervals over the entire construction period, albeit that most workers will arrive at the site during the early morning or after the airport closes in the evening (22:00) in respect to night-time shift workers.
- 6.5 As such, the peak total number of workers on site (an average maximum of 775, comprised of 500 on CADP1 and 275 on CADP2 (Hotel)) in any one day would not arrive or depart from the Airport at the same time. However, those arriving for the 'day shift' would travel outside of the morning peak hour (08:00-09:00) and would be expected to travel between 07:00 and 08:00. In relation to the peak flows, DLR provided flows for a three hour peak period (07:00 – 10:00), and advised that the 08:00 – 09:00 period made up 46% of that peak period.
- 6.6 It should be noted that DLR did not request an assessment of the PM peak period during the TA scoping exercise, since crowding levels are lower in the PM peak period than they are in the AM peak period.
- 6.7 Given that flows from 08:00-09:00 make up 46% of total AM peak period flow, it is reasonable to assume that the shoulders of this peak period (including 07:00 – 08:00) experience noticeably lower flows than the peak hour. Making a reasonable worst case assumption that the 07:00 -

08:00 period experiences 60% of the remainder (60% of 54%), then the 07:00 – 08:00 Baseline flows are 32% of the three hour peak period flow.

- 6.8 In order to illustrate the impact, Figure 6.1 below compares the Baseline demands for 07:00-08:00 (i.e. the situation without CADP construction workers) with Baseline plus Construction Worker demands. It also provides a comparison to the Baseline demand for 08:00-09:00 (without construction workers).
- 6.9 For clarity, Vectos has quantified a worst case for construction personnel movement on the DLR outside of the important period. Taking a worst case assumption that all construction workers are concentrated into the 07:00-08:00 hour, Vectos applied this to the mode split assumptions for Airport staff set out in the TA (Table 6.10), with an adjustment to reflect that 25% of construction workers would drive. This gives a DLR mode share of 29% which, when applied to the total number of construction workers (775) results in 225 construction worker movements on the DLR in this period, diluted across the various movements. For distribution, the same east/west split as detailed in Section 7 of the TA (which draws upon the DLR's own origin and destination matrix) has been assumed. This shows 173 construction workers arriving from the west (77%) and 52 from the east (23%). These movements do not impact on the critical local DLR movement, which is westbound, east of Canning Town and this is not a route to the construction site.
- 6.10 Figure 6.1 showing this 'worst case' distribution of construction workers on the DLR is presented on the following page.

Figure 6.1- Impact of Construction workers on DLR



- 6.11 Figure 6.1 shows that passenger flows during the 07:00-08:00 Baseline plus Construction Workers is less than passenger demand during the 08:00-09:00 Baseline. Therefore, there would be no noticeable effect on the DLR during the morning peak hour at any stage during the construction period.
- 6.12 In conclusion, when considering the important period for the DLR, the morning peak (08:00-09:00), the travel demand by construction workers can be considered **negligible**. At worst, there will be a **negligible** to **minor adverse** effect between 07:00 and 08:00.
- 6.13 As described in the ES Chapter 11, paragraph 11.140 a Construction Logistics Plan (CLP) will be prepared and agreed with LBN in order to provide appropriate mitigation measures during the construction phase, so as to minimise the impact on surrounding transport networks. Specifically, the CLP would include the following:
- a) Confirmation of working hours and shifts for construction staff;
  - b) Details of the designated construction traffic routes to / from the Airport; and
  - c) An estimate of the daily number of construction workers
- 6.14 The Airport also implements a staff Travel Plan which will be rolled out to include construction workers associated with the CADP.

**LBN Reg 22 Request:**

*36) At Section 11.39 it is stated that a qualitative assessment has been made on bus passengers, rail, walking and cycling. However, no assessment has been provided, although some baseline/comparison data has been referenced.*

**Response:**

- 6.15 The environmental effects of CADP on bus, rail, walking and cycling modes have been considered both within the ES Chapter 11 and the TA which accompanied the ES as part of the CADP planning application submission.
- 6.16 The TA includes a quantitative assessment of bus passengers, rail passengers, walkers and cyclists, as presented within Section 6, Tables 6.12-6.17. This assessment indicates that the CADP will attract just 18 additional bus passengers, 5 additional pedestrians and 2 additional cyclists in the AM peak hour and 20 additional bus passengers, 5 additional pedestrians and 2 additional cyclists in the PM peak hour in 2021. The same assessment for 2023 indicates just 20 additional bus passengers (rising to 22 in the PM peak), 6 additional pedestrians and 3 additional cyclists would be generated in the AM peak hour as a result of the CADP.
- 6.17 As there are in the order of 11 buses per hour calling at the Airport during peak periods, it is considered that this marginal increase in bus passengers will not have any impact upon the operation of these services. Furthermore, it is likely that this increase will be well within daily fluctuations that would occur in any event.
- 6.18 Therefore, on the basis of the assessment undertaken within the TA and application of professional judgement by Vectos, the environmental effect of CADP on bus services is considered to be **negligible**.

- 6.19 The TA further considers the impact of CADP on walking, including a PERS audit which is included at Appendix K to the TA and cycling within Section 8. Paragraphs 8.1 to 8.7 consider specifically the impact on walking and Paragraphs 8.8 and 8.9 consider the impact of the CADP on cycling. The TA concludes, at paragraph 8.10, that:
- a) The proposals enhance the attractiveness of walking and cycling to the Airport, potentially increasing the demand for both modes, particularly for staff;
  - b) The PERS audit has demonstrated that, for pedestrians, the Airport is well-connected to the surrounding area; and
  - c) The proposals include additional cycle parking and facilitate an additional cycle route to / from Woolwich Manor Way.
- 6.20 Therefore, the effect of CADP on walking and cycling modes is considered to be **minor beneficial**.
- 6.21 Overall, the minor beneficial effect on DLR services, the negligible effect on bus services and the minor beneficial effect on walking and cycling are considered to have a combined overall **minor beneficial** effect.

**LBN Reg 22 Request:**

*37) The assessment makes no reference to the impact on or the benefits of High Speed Rail to reducing the demand for air travel.*

**Response:**

- 6.22 The Need Statement submitted with the July 2013 CADP planning application (prepared by York Aviation Ltd) did not make explicit reference to High Speed Rail and the potential to reduce demand for air travel for a number of reasons:
- a) The underlying market growth rates used as a basis for preparing the demand projections were based on the Department for Transport's national air passenger demand forecasts of January 2013. These have already factored in the impact of high speed rail on the market for air travel within the UK and Europe.
  - b) The forecasts cover the period to 2023, which is prior to the opening of HS2 expected in 2026. In any event, HS2 will have only a marginal impact on journey times to the Scottish destinations, which are the only mainland UK points to which London City has services now or is expected to have services in 2023. Air will remain the preferred mode for the day return business trips that make up the core of London City's market.
  - c) Beyond 2023, the consented capacity at London City will be fully utilised. To the extent that further improvements in High Speed Rail services may impact on the market for air travel at London City, this would simply have the effect of allowing longer distance services to displace shorter distance services.
- 6.23 Hence, it is not expected that High Speed Rail will have any implications for the demand forecast to use the Airport within the relevant period, over and above that already taken into account in the underlying market growth projections.

6.24 A further, more detailed response to this matter is presented in Section 6 of the Planning Statement Addendum (Quod, February 2014).

**LBN Reg 22 Request:**

*38) The results shown in Tables 11.10 and 11.11 demonstrate that the effects either remain the same, or get worse. However, the assessment concludes that ‘Overall. Taking into account of the increased sustainability and environmental benefits, it is considered that the effects of the CADP on public transport would be Minor beneficial’. No detailed explanation is provided for this conclusion in the next text (paragraphs 11.120 to 11.126).*

**Response:**

6.25 Tables 11.10 and 11.11 (Chapter 11) of the ES present the results of the assessment of impact on the DLR in the AM peak for the 2023 ‘with CADP’ scenario and the sensitivity test, respectively.

6.26 As confirmed at paragraph 11.123 *“Table 11.10 (Chapter 11 of the ES) shows that for most links the degree of crowding does not change between the With and Without Development Cases. This is because there is a marginal change in the crowding factor as a result of the CADP”.*

6.27 Only one out of ten DLR links assessed experiences an increase in the level of crowding, with the other nine links continuing to operate at the same level of crowding; Five of the nine links are clearly classified as ‘no crowding’, three of the nine links classified at ‘low crowding’ and one classified as ‘heavy crowding’).

6.28 The one link that is shown to experience an increase in the level of crowding shows an increase in from ‘medium’ to ‘heavy’ crowding. As stated within paragraph 11.124 (Chapter 11) of the ES *“crowding is anticipated to occur even without the CADP, and CADP does not exacerbate crowding significantly. Hence, CADP can be considered to have a Negligible effect on crowding”* on the DLR.

6.29 As crowding on the DLR is not significantly exacerbated and CADP would generate an increase in the number of journeys by public transport, particularly by DLR, it is considered that it would have a **Minor Beneficial** effect on existing public transport conditions. This is because of the additional revenue that would be generated by the additional passengers.

**LBN Reg 22 Request:**

*39) The Conclusion and Recommendations section (Table 11.12) does state that the conclusion that the effect would be beneficial is because of the additional revenue that would be generated by the additional passengers. In order to fully understand the mitigation measures required, the ES should present the effects both prior to, and with, mitigation rather than just concluding that the effects will be beneficial.*

**Response:**

6.30 Table 11.12 of the ES Chapter 11 has been repeated below. It is assumed that the above request is referring to the Public Transport section of the table. The effects have been presented before mitigation (potential effect) and after mitigation (residual effect) within the ES. In relation to public transport, the overall effects are concluded to be minor beneficial both before and after mitigation.

6.31 As illustrated below, the further mitigation relates to the introduction of a Taxi Management Plan and it was not considered necessary to implement further mitigation in relation to public transport, such as the DLR. The revenue generated by additional passengers on the public transport network is not considered to be a mitigation measure and would therefore not alter the residual effect.

**ES Table 11.12 – Summary of Potential Effects, Mitigation and Residual Effects**

Issue	Potential Effect	Further Mitigation	Residual Effect
Demolition and Construction	Temporary Moderate Adverse	Construction Logistics Plan	Temporary Minor Adverse
Road Network	Moderate Adverse → Minor Beneficial	Travel Plan., Taxi Management Plan, Delivery and Servicing Plan	Minor Adverse
Public Transport Network	Minor Beneficial	No DLR mitigation.	Minor Beneficial
Severance*	Minor Adverse → Negligible	No mitigation	Minor Adverse → Negligible
Driver Delay	Minor Adverse	Travel Plan	Minor Adverse → Negligible
Pedestrian Delay	Negligible	Development design	Negligible
Pedestrian Amenity	Minor Beneficial	Development design	Minor Beneficial
Fear and Intimidation	Minor Beneficial	Development design	Minor Beneficial
Accidents and Safety	Negligible	No mitigation	Negligible

*\*The Residual Effect for Severance has been revised as a result of a typographical error in the ES as the Potential Effects and Residual Effects are the same due to no mitigation measures being implemented.*

**LBN Reg 22 Request:**

*40) The assessment only considers the effects of the proposed development on local DLR stops, rather than the wider DLR network, on which there could be 'knock on' effects.*

**Response:**

6.32 The scope of the assessment on DLR services was outlined within the Transport Scoping Report (issued to TfL and LBN on 3<sup>rd</sup> December 2013) and agreed with TfL in advance of the submission of the CADP planning applications. It was agreed that the effect of the CADP would be examined on 'the Airport Route' of the DLR network, comprising of the section between Canning Town and Woolwich Arsenal via London City Airport.

6.33 However, it should be noted that the impact of the CADP on DLR services has been discussed extensively with TfL/DLR since submission of the CADP planning applications. A supplementary assessment of impact on the wider DLR network was prepared following these discussions. The revised impact assessment, the methodology for which was agreed with DLR at a meeting on 20<sup>th</sup> November 2013, is included at Appendix 6.1.

- 6.34 The revised assessment concludes that the impact of the CADP proposals on the DLR, considering the network as a whole, is minimal and therefore it has negligible adverse effect.
- 6.35 In the context of the wider DLR operation there are benefits associated with CADP. The greater use of the DLR network across the day is a benefit. It means more efficient use of this highly sustainable public transport network, and consequent increased revenue. The increased revenue forms part of the virtuous circle of greater investment in the system, a more attractive system as a result, attracting greater use, and generating greater revenue.
- 6.36 This contributes to sustainability aims and taken overall with other effects has been judged to be of **minor beneficial** significance.

## 7. REGULATION 22: CLIMATE CHANGE

---

7.1 One request was made under Regulation 22 in relation to Chapter 17 of the ES: Climate Change.

**LBN Reg 22 Request:**

*41) There needs be a detailed justification as to why GHG (Green House Gas) per passenger is increasing.*

**Response:**

**a) Introduction**

7.2 Chapter 17 of the ES presents the estimated emissions for three scenarios – the present-day baseline for the Airport (using data from 2011-13), and both the ‘with’ and ‘without’ development scenarios for the principal assessment year of 2023. The detail calculations provided in this chapter illustrate why Greenhouse Gas (GHG) emissions will increase in the future, both with and without the CADP. In both cases this is due to the projected growth in passenger numbers and flights over the next 9-10 years, albeit that this growth is constrained without the new infrastructure introduced by the CADP. At the end of this time period there will also be marginally higher total emissions with the CADP in place than without it, due primarily to the physical enlargement of the terminal and passenger processing facilities at the Airport. However, emissions per aircraft will be proportionally less with the CADP because of the greater number of larger and technologically advanced aircraft (‘new generation aircraft’) that would be accommodated.

7.3 The following text is provided in order to more clearly explain the differences in emissions between these scenarios and, in particular, why overall emissions per passenger will increase with the CADP during the assessment timeline (i.e. up to 2023). It does not alter or replace the original assessment contained in Chapter 17, but presents this in a more concise format.

**b) Further Explanation of Emissions Calculations**

7.4 The following elements were included within each of the emissions scenarios:

*Baseline scenario*

- a) Existing Airport building energy and water consumption, and waste disposal;
- b) Airside ground operations (fuel use); and
- c) Landing and Take-off (LTO) cycle of aircraft using the Airport in 2012, comprising 70,502 movements.

*Future scenario – without development*

- a) Airport building energy and water consumption, and waste disposal, with greater passenger numbers (total pax of 4,435,000);

- b) Airside ground operations (fuel and electricity use) with a greater number of aircraft movements, comprising 96,713 movements in 2023; and
- c) LTO cycle of aircraft using the Airport with this greater number of aircraft movements.

*Future scenario – with proposed development*

- a) Existing and proposed Airport building energy and water consumption, and waste disposal with greater passenger numbers (total pax of 5,874,000);
- b) Airside ground operations (fuel and electricity use) with a greater number of aircraft movements, comprising 111,039 movements in 2023; and
- c) LTO cycle of aircraft using the Airport, including new-generation aircraft such as the Bombardier C-100.

7.5 The following table provides a summary of the total emissions estimated for the three scenarios, as presented in the ES.

Emissions Source	Total Baseline Emissions (201-2013)	Total Without Development Emissions (Future Year 2023)	Total With Development Emissions (Future Year 2023)
Terminal energy, water and fuel consumption and waste (tCO <sub>2</sub> e)	7,097	2,853	7,329
Aircraft LTO emissions (tCO <sub>2</sub> e)	48,179	72,292	94,597
TOTAL (tCO <sub>2</sub> e)	52,276	75,144	101,926

7.6 Both future scenarios (with and without development) include a greater number of passengers and aircraft movements, which accounts for the increased aircraft LTO emissions in the future years compared to the current baseline. In the 'without development' scenario, the number of movements and the size of aircraft is constrained by the existing infrastructure (as explained in the Need Statement accompanying the CADP planning submission), whereas with the CADP, the additional infrastructure (i.e. the 7 new stands and parallel taxiway) and enhanced passenger processing facilities in the extended Terminal and Pier, allows for a further increase of 14,326 aircraft movements and approximately 1.4 million additional passengers by 2023.

7.7 Table 17.4 in the ES (re-provided below) further breaks down the calculated emissions to show total emissions on a per passenger basis:

Emissions Source	Baseline	Without development	With development	Change from baseline		Change from without development to with development	
Terminal energy, water and fuel consumption (kgCO <sub>2</sub> e)	2.34	0.64	1.25	-1.09	-46.7%	0.60	94.0%
Aircraft LTO emissions (kgCO <sub>2</sub> e)	15.90	16.30	16.10	0.20	1.3%	-0.20	-1.2%
TOTAL	18.24	16.94	17.35	-0.89	-4.9%	0.41	2.4%

(kgCO <sub>2</sub> e)							
Passengers (no.)	3,030,000	4,435,000	5,874,000	2,844,000	93.9%	1,439,000	32.4%

- 7.6 Analysis of the above figures reveals the following:
- 7.7 Looking firstly at the Terminal operations, emissions per passenger decrease substantially in both the ‘with’ and ‘without development’ scenarios compared to the 2012 baseline. This is due primarily to the application of a lower national electricity ‘emissions factor’ that would apply to this future year (see below). Also, in the ‘without development’ case, many more passengers would be squeezed into the same Terminal space that exists at present, which would further reduce the per passenger emissions but have an adverse consequence on passenger comfort and experience.
- 7.8 GHG emissions arising from electricity consumption in the future year (2023) have been estimated using DECC’s Interdepartmental Analysts’ Group’s projections of the carbon intensity of future electricity generation. DECC’s projected scenario assumes rapid decarbonisation of average grid electricity generation, with a 65% reduction between 2013 and 2023. The 47% reduction in the future year with the CADP reflects this change and the fact that the new Terminal facilities will be much more energy efficient than at present. However, these gains are partially off-set by the lower density of passengers within the new Terminal space, which is considered essential to provide efficient passenger processing and comfort within the buildings.
- 7.9 Comparing the ‘with’ and ‘without’ cases, whilst the new Terminal facilities will be more energy efficient (per m<sup>3</sup>) the overall energy consumption will be greater than the existing terminal because there is more space to heat, cool and light. In other words, when you calculate this on a per passenger measure, building emissions are greater with the CADP (1.25 kgCO<sub>2</sub>e) than without it (0.64 kgCO<sub>2</sub>e) because, in the latter case, the forecast additional 1.4 million passengers are accommodated in the existing Terminal space.
- 7.10 With regard to aircraft emissions in the landing and take-off (LTO) cycle, the expected changes in fleet composition, with larger aircraft displacing smaller lighter planes, is estimated to lead to minor increases in emissions per passenger during this short phase of the flight (i.e. within a approximate 2 mile radius of the Airport). This change occurs in both the ‘with’ and ‘without’ development scenarios and is primarily due to the increased thrust required for larger aircraft to take off from the Airport. However, as modern larger aircraft are able to carry more passengers over greater distances and are generally more fuel efficient than older smaller aircraft, the net emissions per passenger across the whole flight profile will be lower. These emissions gains will be further enhanced by the introduction of new generation aircraft, such as the Bombardier C100, which are more fuel efficient than existing aircraft types in operation at the Airport (such as the Embraer E190).
- 7.11 This point is elaborated upon at paragraphs 17.96 to 17.97 (Chapter 17) of the ES which describes how, based on the manufacturer’s data, the C100 would generate 13% less CO<sub>2</sub> on a typical flight (to Zurich) and derive a net reduction of 22% CO<sub>2</sub> per passenger compared to similarly sized existing aircraft models. As this aircraft is predicted to contribute 14,461 aircraft movement per year by 2023 in the ‘with development’ case, this accounts for a significant potential CO<sub>2</sub> reduction across the whole flight profile compared to ‘without development’ case, albeit that emissions savings in the LTO cycle are quite modest (i.e. 0.2 KgCO<sub>2</sub> e). Notably, this

decrease in LTO emissions is more pronounced when considering that the number of scheduled aircraft movements in 2023 is predicted to be higher than in the without development scenario (i.e. 107,119 compared to 87,713 without development).

- 7.12 The trend towards larger aircraft is as a result of growth in demand, market capture, and changes to route networks and fleet mixes is described in detail in the Need Statement (York Aviation, July 2013).

**c) Conclusions**

- 7.13 Taking all of the above into account, the following conclusions can be drawn:
- 7.14 Total estimated emissions, when calculated on a per passenger basis, are lower for the future year (2023) with the CADP in place than for the existing baseline emissions (2012-2013). This is due to a combination of DECC's projected decarbonisation of grid electricity generation and the predicted change in the composition of the aircraft fleet at the Airport in future years (with gradual introduction of larger, more efficient aircraft types).
- 7.15 Total emissions per passenger with the CADP in place are, however, marginally higher (0.41kgCO<sub>2</sub>e, or a 2.4% increase) than if no development took place by 2023. This is due to the inevitable increases in energy consumption associated with the need to service more building space, in particular the Eastern Terminal Extension, coupled with a lower overall density of passengers (per m<sup>3</sup> of floorspace) within the new Terminal facilities. These minor increases are calculated on a relative basis and should be judged against the undesirable situation of the Airport having to accommodate many more passengers than now within the existing constrained Terminal space, as would occur in the 'without development' case.
- 7.16 Whilst these buildings emissions are relatively small when compared to the total aircraft emissions, the difference is enough to nullify the gains in the LTO cycle from the introduction of new generation aircraft within the projected CADP fleet mix (i.e. this gain being just 0.2 kgCO<sub>2</sub>e per passenger). As such, there will be a small net increase in per passenger emissions overall (2.4%) compared to a without development scenario. Importantly though, the CADP accommodates a 34% increase in passengers and would facilitate the transition to more fuel efficient modern aircraft such as the Bombardier c-100, which can carry more passengers over greater distances and have proportionately lower emissions throughout the full flight cycle.

## 8. REGULATION 22: BREEAM ASSESSOR DETAILS

---

### a) Regulation 22 Matters- 'further information'

- 8.1 One request was made under Regulation 22 in relation to Chapter 4: Alternatives and Design Evolution (Paragraph 4.51). This request is shown below:

**LBN Reg 22 Request:**

**Chapter 4 – Alternatives and Design Evolution**

Sustainability and Energy

1) LCA have committed to assessing the CADP proposals against the Building Research Establishment's Environmental Assessment Model (BREEAM) and achieving a 'Very Good'.

*We are aware that RPS have included a draft BREEAM pre-assessment framework at Appendix 2 of the sustainability statement. Please confirm that this assessment has been undertaken by a licensed and trained BREEAM assessor.*

**Response:**

- 8.2 RPS can confirm that the assessment has been undertaken by a licensed and trained BREEAM Assessor. The certificates/qualifications of the Assessor are included within Appendix 8.1 of the ES Addendum.

## 9. NON REGULATION 22 MATTERS AND CLARIFICATIONS

---

### a) Introduction

- 9.1 The following sections relate to Page 6 onwards of the LBN Regulation 22 letter. These queries represent Non-Regulation 22 issues and generally relate to matters of clarification on aspects of the July 2013 ES and associated documents. None of the information below has any material bearing on the content or conclusions of the July 2013 ES.

### b) Noise

#### **LBN Request:**

*1) The Aviation Policy Framework 2013 states that it is expected that reduction in noise level from aircraft should benefit both the operator and the local community. It is not clear how this application addresses this policy issue. Please clarify.*

#### **Response:**

- 9.2 The Airport currently has permission to operate up to 120,000 aircraft movements and the CADP application does not seek to alter this aircraft movement cap. Any reduction in noise therefore, that occurs as a result of lower noise levels from individual aircraft, will provide a benefit to the environment and local community. The primary purpose of the CADP application is to provide the infrastructure to enable more modern and quieter aircraft to operate at the Airport over the coming decades. With the infrastructure in place, this will provide the potential for the CS100 aircraft, as well as other 'new generation' aircraft, to replace RJ100 and similar types of older aircraft which individually produce a greater amount of noise for the local community.
- 9.3 The overall noise exposure will of course depend on the number of aircraft movements that operate in a given year and the forecasts indicate that, over the coming years, the number of movements will increase with the CADP as compared to without the CADP. As the more modern aircraft continue to be introduced to the Airport, the overall noise exposure beyond 2023 may reduce compared to that presented for 2023. For example, the current fleet of Embraer E190 aircraft are likely to be retrofitted with new, quieter jet engines and/or replaced by the more modern types flying at that time.

#### **LBN Request:**

*2) Please provide more information/clarification on why the take up of the sound insulation scheme in the London Borough of Tower Hamlets is not extensive.*

#### **Response:**

- 9.4 Under the current scheme the Proton, Neutron, Elektron Towers along with Switch House contain 497 flats. These apartment buildings were constructed recently (around 2009) between Aspen Way and the DLR. As a result, they are exposed to high levels of road traffic and DLR noise. To comply with planning requirements and Building Regulations, these apartments have been designed and built to control these levels of external noise. These flats therefore already have high acoustic performance double glazed windows and ventilation complying with Building

Regulations requirements. However, the specification of sound insulation and ventilation works to comply with LBTH planning requirements is different from the specification of the Airport's Sound Insulation Scheme. There is therefore an obligation to offer ventilators. Building management and property owners have stated that they do not want these ventilators installed. Their view is that the buildings have already been provided with adequate sound insulation and it is not reasonably practicable to install these ventilators in modern high-rise tower blocks with light weight Steel Frames System (SFS) external cladding due to non-acoustic design issues.

- 9.5 The Airport has been in dialogue with residents, property managers and the local authority regarding these buildings. Due to the reasons given above both the property managers and residents are currently refusing to have works carried out. Alternative works are therefore being considered.
- 9.6 During 2013, a substantial number of additional recently constructed premises became eligible in Tower Hamlets. These included 559 dwellings in the New Providence Wharf development and 264 in Ontario Tower. Again a planning condition imposed on these developments required a minimum standard of sound insulation to protect residents against road traffic noise. Ontario Tower provides sufficient sound insulation with a floor to ceiling double glazed curtain wall façade and comfort cooling to all apartments. New Providence Wharf is comparable to Proton, Neutron and Elektron. The Airport has been in dialogue with residents, property managers and the local authority regarding these buildings.

### c) Sustainability

#### **LBN Request:**

*(The following issues were requested in the GLA Stage 1 report);*  
 3) *It is recommended that a copy of the updated Sustainable Construction Strategy (as referenced within the Sustainability Statement) is provided at this stage of the application process.*

#### **Response:**

- 9.7 The following responses refer to the CADP Energy and Low Carbon Strategy Addendum (Atkins, February 2014) which has been submitted separately to this ES Addendum. The Airport's Sustainable Construction Strategy and Checklist is included within Appendix 9.1 of the ES Addendum.

#### **LBN Request:**

*(The following issues were requested in the GLA Stage 1 report);*  
 4) *Details should be provided of how all the new buildings within the site will be connected together to the Airport's own heat network, and in addition, how that network could potentially connect with any potential Royal Docks district heat network.*

#### **Response:**

- 9.8 Please refer to Section 3 of the Energy and Low Carbon Strategy Addendum (Atkins, January 2014), particularly paragraphs 3.7 and 3.8.

**LBN Request:**

*(The following issues were requested in the GLA Stage 1 report);*  
 5) Further information including heating, cooling and electricity load profiles should be provided to justify the sizing of the CHP engines.

**Response:**

- 9.9 Please refer to pages Section 4 of the Energy and Low Carbon Strategy Addendum (Atkins, January 2014), particularly paragraphs 4.1 - 4.4.

**LBN Request:**

*(The following issues were requested in the GLA Stage 1 report);*  
 6) For the new build elements of the development, completed versions of Tables 1 and 2 from the GLA Guidance on planning energy assessments should be provided. These include the CO<sub>2</sub> emissions derived from the modelling software at each stage of the energy hierarchy expressed in tonnes of CO<sub>2</sub> per annum not kg/m<sup>2</sup>.

**Response:**

- 9.10 Please refer to Section 2 of the Energy and Low Carbon Strategy Addendum (Atkins, January 2014), particularly paragraphs 2.1 - 2.7.

**LBN Request:**

*(The following issues were requested in the GLA Stage 1 report);*  
 7) LCA should confirm the amount of PV proposed and should provide a layout showing where this will be installed. This should confirm that the installation is not significantly over-shaded and should perform as predicted.

**Response:**

- 9.11 Please refer to Section 5 of the Energy and Low Carbon Strategy Addendum (Atkins, January 2014), particularly paragraphs 5.1 – 5.3.

**LBN Request:**

*(The following issues were requested in the GLA Stage 1 report);*

8) Further information should be provided regarding the sizing of the dock water heat pumps and associated carbon savings. The information should clarify what cooling demand will be met by the CCHP 's and how the two systems will work together efficiently. LCA should quantify how much carbon these proposals will save across the site for the "be green" step of the London Plan energy hierarchy.

**Response:**

- 9.12 Please refer to Section 5 of the Energy and Low Carbon Strategy Addendum (Atkins, January 2014), particularly paragraphs 5.4 – 5.7.

**d) Transportation**

- 9.13 The following comments have been made under Part 2 - Non Regulation 22 Additional Information/ Clarifications in relation to transportation matters, including Chapter 11 of the ES and the accompanying TA.

**LBN Request:**

*9) Vehicular access - The implications of the provision of a new access into the site from the A117 Woolwich Manor Way / Fishguard Way needs to be understood further. The link already exists but is currently only available on a temporary basis for buses. LCA need to clarify the long term status of this road; whether it is to remain in the Airport's ownership or whether they are looking for the Local Authority to adopt this as part of the Public Highway. Furthermore, details should be provided evidencing the suitability/capability of this route to accommodate all vehicular movements modes including buses, cyclists and pedestrian. Whilst it is noted that some details have been provided in the Design and Access Statement, it is considered that more technical details are required.*

**Response:**

- 9.14 The submitted TA provides information in this regard, including confirmation of the future ownership and status of the road and details of the capability of this route to cater for all vehicular modes including buses, pedestrians and cyclists.
- 9.15 Paragraph 2.8 of the TA relates to the existing context and confirms that *"vehicle access to the Airport is provided from Hartmann Road, a private road with an east-west orientation. It forms a signalised junction with the A112 Connaught Road at its western end, which currently functions as the single point of access to the Airport from the wider highway network. At its eastern end, Hartmann Road forms a signalised junction with the A117 Woolwich Manor Way, although this junction is presently closed for access to the Airport"*.
- 9.16 The TA also confirms that *"vehicle access will continue to be provided from the junction of Hartmann Road / A1011 Connaught Road. In addition, it is proposed to create a further permanent access and vehicle link to the Airport from the junction with the A117 Woolwich Manor Way/Fishguard Way"*.
- 9.17 The GLA's Stage 1 Referral (Ref: D&P/3031/01) confirms that the opening up of this access is welcomed by TfL, in principle.
- 9.18 With specific regard to the opening up of a new access from the A117 Woolwich Manor Way /Fishguard Way, Paragraph 4.6 of the TA states that *"it is proposed to create a further permanent access and vehicle link to the Airport from the junction with the A117 Woolwich Manor Way/Fishguard Way. Although not open to public traffic, the link already exists and has previously provided access to the Airport for staff and most recently has provided temporary access during the Olympics. The link is, and will remain, within the Airport's ownership. It provides a direct connection between the eastern end of Hartmann Road and the signalised junction with the A117 Woolwich Manor Way/Fishguard Way"*.
- 9.19 Paragraph 4.6 of the TA confirms that *"the proposed link is shown on Figure 3 [of the TA] and detailed drawings showing the specification for the link are included in at Appendix C [of the TA]"*.

- 9.20 Furthermore, the TA confirms at paragraph 4.7 that *“no changes are proposed to the physical layout of the junction”*. The existing layout of the junction is shown on the submitted Drawing no. 110116A/A/SK01.
- 9.21 The TA goes on to state at paragraph 4.8 that *“whilst London Buses have indicated that they do not intend to operate bus services through the junction and along Hartmann Road in the short-term, the swept path analysis for a bus manoeuvring at the junction has been undertaken to show that this could be accommodated in the future. The swept paths are shown on submitted Drawing no. 110116A/AT/A01”*.
- 9.22 Paragraph 4.9 of the TA states that *“provision of the additional access improves the Airport’s resilience to potential access disruption, as well as shortening the distance travelled on the local highway network for journeys to / from the east. In particular, it will reduce the number of Airport related vehicles using the A1020 Royal Albert Way”*.
- 9.23 It is not anticipated that a significant amount of non-Airport related traffic will be attracted to the new link, since it will remain a private road associated with Airport activity.
- 9.24 Paragraph 4.10 of the TA goes on to state that *“measures to reduce and control speeds could be implemented, to discourage the route being used as an alternative to the A112 Albert Road. The existing layout of the junction is shown on Drawing no. 110116A/A/SK01. No changes are proposed to the physical layout of the junction”*.
- 9.25 In relation to the capability of the route to accommodate other road users, attention is drawn to the following:
- a) Submitted Drawing 110116A/AT/A01 which identifies the swept path manoeuvre for buses using the junction;
  - b) Submitted Plans 7.4 and 9.14 to 9.22 which clearly identify a dockside path along the southern edge of King George V Dock, confirming that appropriate walking and cycling routes in this vicinity are provided; and
  - c) Confirmation within the TA (as described above) on the nature and operation of the new link and its future ownership.

**LBN Request:**

*10) Technical and functioning details relating to the operating system to control the taxi feeder park is required. Details should also include the proposed management process at the taxi rank and drop off point. A Framework Taxi Management Plan should be submitted setting out details such as principles, process, stakeholders and enforcement.*

**Response:**

- 9.26 A significant amount of detailed discussion has been had regarding the operation of the Taxi Forecourt and Taxi Feeder Park since the CADP planning applications were submitted in July 2013, including numerous meetings with LBN and TfL.

- 9.27 In particular, the Airport has agreed to prepare and submit a Framework Taxi Management Plan (TMP) which was submitted to TfL on 15th January 2014. This is attached at Appendix 9.2 of the ES Addendum.
- 9.28 The Framework TMP sets out the proposed arrangements for Black Taxis and Private Hire Minicabs and the management measures that will be implemented for each once the proposed Forecourt is brought into use.
- 9.29 The Framework TMP will be developed into a Detailed TMP and approved prior to the Forecourt becoming operational. It is proposed that the detailed TMP will be secured by way of a planning condition as set out within Section 5 of the Planning Statement Addendum.
- 9.30 The Framework TMP also proposes a condition in order to provide certainty that the proposed Taxi Feeder Park will be safeguarded for CADP.
- 9.31 The Airport will continue consult with TfL and LBN during the development of the Detailed TMP, as it has done during development of the Framework TMP.

**LBN Request:**

*11) A feasibility study is required setting out the options for opening up a northern access point from the airport site to the King George V DLR station, to improve connectivity and accessibility, reduce severance and promote sustainable travel modes. Details should include improved public transport interchange options at this location, by way of provision of additional bus stops and improved public realm.*

**Response:**

- 9.32 The TA describes the DLR links with the Airport. The London City Airport station is directly and conveniently linked with the Airport buildings. It provides one of the best public transport facilities to an airport in the UK.
- 9.33 King George V station is substantially less convenient and attractive for Airport access compared with the dedicated and named DLR station. It is some 850m away and served by the same DLR line as the London City Airport station. It does not offer any relative benefits, and is significantly less attractive.
- 9.34 The reasonable judgement has been made that for the purpose of ES assessment no staff member or passenger, for the purpose of using the Airport as a result of CADP, would choose to alight or board a DLR train at this station.
- 9.35 This is set out in the TA at Table 7.3.
- 9.36 The judgement has been made that as there is no meaningful change in movement at King George V station, that there is no need or purpose in undertaking more detailed assessment. A more detailed assessment is likely to perpetuate the conclusion that there is 'negligible effect' as a result of CADP.
- 9.37 Notwithstanding this, it should be noted that a future feasibility study for a potential use of King George V station associated with the Airport has not been ruled out. However, such a study is not justified as a requirement of the CADP assessment.

9.38 In terms of connectivity and accessibility, reducing severance and promoting sustainable travel modes, CADP makes a significant contribution by design where those improvements, direct or indirect, are reasonably related to the CADP proposal. The connectivity and public realm improvements under CADP are discussed in the DAS.

9.39 In particular, the CADP proposals include a wide Dockside path connecting Woolwich Manor Way, and surrounding community, with the Airport, where this link does not exist at present. The Dockside path will enhance connectivity for pedestrians and cyclists alike. It will be accessible at a number of locations along its length as demonstrated by Figure 4.8.2.2 of the DAS. The CADP proposals also include a passenger walkway canopy between the Forecourt and the Hotel.

**LBN Request:**

*12) LCA need to provide more evidence to support their assumption that the majority of vehicular trips to the site will remain from Hartmann Road/Connaught Road, rather than Woolwich Manor Way/Fishguard Way.*

**Response:**

9.40 This Section should be read in conjunction with the response provided for request Item 9, Part 2 of the LBN Regulation 22 letter, which also responds to queries from LBN regarding the opening up of a new access from the A117 Woolwich Manor Way/Fishguard Way.

9.41 With respect to the assumptions made regarding the likely distribution of traffic, Section 9 of the TA sets out a detailed assessment of the impact of CADP on the road network. The scope of the study area is confirmed at paragraph 9.1 which states that *'it includes the key strategic vehicle routes in the vicinity of the Airport including the A1020 Royal Albert Way / Connaught Bridge and the A117 Woolwich Manor Way / Albert Road'*.

9.42 Paragraph 9.2 of the TA confirms the junctions that have been assessed in relation to CADP including:

- a) Hartmann Road / Connaught Road;
- b) Connaught Road / Connaught Bridge Road; and
- c) Proposed Access / A1011 Woolwich Manor Way / Fishguard Way'.

9.43 Detailed flow diagrams confirming the distribution of traffic are included in Traffic Figures 1 to 65 of the TA.

9.44 In relation to distribution of road traffic, it was confirmed at the pre-application stage that data showing the distribution of car journeys, collected as part of regular Airport passenger surveys, would be used to determine the assignment of Airport-related traffic, once the additional access to the A1011 Woolwich Manor Way is brought into use under the CADP proposals. This is outlined in the Transport Scoping Report which was issued to TfL and LBN on 3<sup>rd</sup> December 2013. A feedback letter was provided on 16th January 2013 whereby no objection or issues were raised to this proposed approach. LBN, having had the opportunity to do so, has not identified this as unreasonable. Therefore, it can be inferred that this distribution is considered to be accepted as agreed for the purpose of assessment by the LBN.

- 9.45 Section 6 of the submitted TA includes information on trip attraction and paragraph 6.36 confirms that *“Further details regarding Trip Attraction for passengers, staff and hotel users are included at Appendix J.”*
- 9.46 The information included within Appendix J of the TA confirms that the distribution and assignment of vehicle trips applied within the TA is based on existing passenger and staff postcode data.
- 9.47 Appendix J of the TA confirms that postcode data for Staff is derived from a Staff Travel Survey which was undertaken in October 2011, whilst passenger data is taken from a Passenger Travel Survey undertaken in June 2012. Table 16 summarises the data for staff, whilst Table 17 summarises the data for passengers (both tables within Appendix J of the TA).
- 9.48 Due to the Airport’s location north of the River Thames, those travelling from south eastern counties such as Kent are likely to arrive from the west via the Blackwall Tunnel. Only those travelling from Essex and east London are predicted to arrive to the Airport from the east. Therefore, it is considered that 70% of passengers will arrive from the west and 30% of passengers will arrive from the east. With a more local population, it is predicted that 34% of staff trips will arrive from the west, and 66% of staff trips will arrive from the east.
- 9.49 Separate assignments have been derived for the ‘With’ and ‘Without’ Development scenarios. The assignment for the ‘With Development’ scenario assumes that a second vehicle access to the Airport will be provided from Woolwich Manor Way. Therefore, vehicles travelling from the east will access the Airport via Woolwich Manor Way. The assignment for the ‘Without Development’ scenario assumes all vehicles will continue to use the existing access from Hartmann Road.
- 9.50 It is this information that has been used as the basis for the assumptions relating to trip assignment as actual recorded data for staff and passengers is considered to be the most accurate. This confirms that the majority of vehicular trips to the site will remain from Hartmann Road/Connaught Road, rather than Woolwich Manor Way/Fishguard Way in the ‘With Development’ scenario.
- 9.51 This approach was discussed at a meeting held between LBN, TfL and the Airport on 4<sup>th</sup> July 2013 and no queries with the approach were raised at that time.

**LBN Request:**

*13) Details of a draft parking management plan should be submitted setting out how increased overspill parking in neighbouring streets arising from the development will be mitigated against.*

**Response:**

- 9.52 The issue of parking in neighbouring streets was discussed with LBN at a post-submission meeting on 4<sup>th</sup> November 2013.
- 9.53 LBN confirmed at that meeting that there is an issue at present with chauffeurs/ taxi drivers parking in streets surrounding the Airport which leads to a level of unsociable behaviour. LBN confirmed that they are concerned that this may worsen in the future as a result of the CADP.

- 9.54 At the time, Vectos queried whether LBN had investigated preventative issues themselves, but it was requested that the Airport develop a management strategy to address this potential issue with regard to the CADP proposals.
- 9.55 It is understood from discussions with LBN that local residents are against the introduction of a Controlled Parking Zone (CPZ) in this location and Vectos considers that implementation of a CPZ would not be sufficient in overcoming the issue.
- 9.56 The issue discussed by LBN on 4<sup>th</sup> November 2013 related to nuisance caused by private hire vehicles which park and wait on neighbouring streets.
- 9.57 The proposed CADP, as described within the submitted TA, goes some way in dealing with this issue already given that the proposed level of car parking provision for all users, including private hire vehicle drop-off, has been designed to accommodate the forecast demand and to prevent overspill parking on surrounding streets.
- 9.58 Detailed plans have been submitted as part of the CADP proposals indicating the location of both staff and passenger car parking and also confirming the provision of parking for disabled users. These details are included within submitted CADP Plans 9.14-9.22 inclusive.
- 9.59 Section 4 of the TA also provides details of the proposed car parking provision and Table 4.2 (of the TA) provides a summary of the existing and proposed car parking provision by user.
- 9.60 Following the meeting held between LBN, TfL and the Airport on 4<sup>th</sup> November 2013, the Airport has consulted with TfL in the preparation of a Framework TMP (Appendix 9.2 of the ES Addendum). This Framework TMP is further discussed at Section 6 of this ES Addendum in the context of the operation of the Taxi Feeder Park. However, the Framework TMP also includes details on the operation of the proposed drop-off area for private hire vehicles.
- 9.61 In respect of private hire minicabs and chauffeurs, the Framework TMP confirms that *“a separate private vehicle pick up / drop off area will be provided in the proposed Forecourt area for use by private cars, private hire minicabs and chauffeur-driven vehicles. It will be segregated from the pick up and drop off area for Black Taxis”*.
- 9.62 The proposed arrangement for private hire minicabs is that they use the pick-up / drop-off area in the proposed Forecourt to wait for short periods, or Passenger Car Park 1 to wait for longer periods. Both options would be subject to a charge, although a short grace period will be provided in the Forecourt. This will be confirmed in any Detailed TMP (to be secured by way of a Condition).
- 9.63 The proposed arrangements for private hire minicabs and private vehicles are designed to provide an additional 40 spaces within the new Forecourt, increasing from the 8 existing spaces to a proposed 48 spaces. This is designed to provide adequate capacity based on forecast requirements but also to discourage the small number of private hire minicabs that currently park and idle off-site in the surrounding residential streets, causing a nuisance to local residents and anti-social behaviour.
- 9.64 In addition to the improved Forecourt capacity for private vehicles, signage will also be provided around Drew Road, Leonard Street and Newland Street making it clear that parking related to Airport use is not permitted. The Airport has already liaised with private hire companies to make

them aware of the current issue and requested that parking within local residential streets is ceased. The Airport will continue to liaise with private hire companies known to operate to and from the airport to further discourage them from parking and waiting off-site.

- 9.65 In addition, at the request of LBN, a Draft Parking Management Plan (PMP) has also been prepared which provides details of the proposed parking provision for all users. The Draft PMP is attached at Appendix 9.3 of this ES Addendum. The Framework TMP and Draft PMP include mechanisms for the monitoring and review of the full TMP and PMP which will be secured by way of a Condition on any planning permission.
- 9.66 One of those mechanisms identified in the TMP and PMP is the Airport Transport Forum. The Airport is committed to maintaining the Airport Transport Forum which will inform the development of the Airport Surface Transport Access Strategy. TfL and LBN will both be invited to be a part of this Forum in due course which provides LBN with the reassurance that they will be consulted as part of the on-going monitoring of overspill parking in surrounding local streets.
- 9.67 The commitments made through the Framework TMP and Draft PMP are considered appropriate to addressing the concerns raised by LBN in relation to overspill parking of private hire vehicles, minicabs and chauffeurs on local streets in the vicinity of the Airport.

#### **e) Other Transport Matters**

##### **1. Demolition and Construction**

- 9.68 Within the Chapter 11 of the ES, at paragraphs 11.98 to 11.105, an assessment of the effect of construction traffic on surrounding transport networks was undertaken based on a broad estimate of site traffic during the construction phase, provided by TPS Consultants. The ES concluded that without mitigation, the effect of construction activity on surface transport networks surrounding the Airport would be temporary, moderate adverse.
- 9.69 As described in Section 3, of the updated ES Chapter 6: Development Programme and Construction the numbers of HGV movements have been revised in line with the more detailed programme that is now available. The following paragraphs consider the effect of this change on the conclusions of the ES.
- 9.70 The peak number of HGV vehicle movements is anticipated to be in the region of 874 two-way trips per month during Phase 2 of the construction programme (see Updated ES Chapter 6), compared to 626 two-way trips per month assessed previously. There are no changes to the peak number of HGV vehicle movements within Phase 1 of the construction programme. The peak number of construction staff vehicle movements is anticipated to be 194 two-way trips per day (25% of 775 staff are assumed to drive).
- 9.71 On the assumption of a 30-day working month, this equates to 223 two-way trips per day, equivalent to 29 two-way HGV vehicle movements and 194 two-way staff movements. This compares to 146 two-way trips per day assessed in the ES, i.e. an increase of 77 trips two-way trips per day.
- 9.72 Woolwich Manor Way, the road where greatest effect occurs, carries a total flow of 6,126 vehicles per day (AADT) and total construction related trips represent just 3.6% of this total flow based on

the revised figures, compared to 2.4% of the total flow previously assessed. This 1.2% increase is considered **negligible**.

- 9.73 In terms of HGVs only the level of construction related HGVs per day is just 4.1% of total HGV flow along Woolwich Manor Way, again demonstrating the effect is **negligible**.
- 9.74 Therefore, without mitigation, the effect of construction activity on surface transport networks surrounding the Airport remains unchanged from that previously assessed as **temporary, moderate adverse**.
- 9.75 It is important to understand that these 223 trips are spread across the course of a day. As referenced in the Updated Chapter 6, the hours of construction of the proposed CADP will be limited by the operational hours and activities of the Airport. A number of major construction activities (such as 70% of all piling, crane placement and pavement works tithing the runway and dock edge) will be undertaken between 22:00-06:30 on weekdays and between 12:30 on Saturday and 12:30 on Sunday. The remainder will be undertaken between 08:00-19:00 on weekdays. Therefore, only a small proportion of the daily construction traffic will occur at peak times.
- 9.76 As described in the submitted TA, a Construction Logistics Plan (CLP) will be produced for the proposed works which will detail the methods of transport for construction materials and employees. It should also be noted that a Construction Logistics Plan (CLP) will be prepared and agreed with LBN in order to provide appropriate mitigation measures during the construction phase, so as to minimise the impact on surrounding transport networks. Specifically, the CLP would include the following:
- i. Confirmation of working hours and shifts for construction staff;
  - ii. Details of the designated construction traffic routes to / from the Airport;
  - iii. Details of construction working hours; and
  - iv. An estimate of the daily number of construction workers.
- 9.77 Pedestrians and cyclists will continue to be able to access the Airport and surrounding area during the construction works. Where necessary, appropriate diversions will be put in place which will be agreed with the local highways authority.
- 9.78 Bus services will continue to serve the Airport during the construction works, with temporary bus stops provided on Hartmann Road if necessary. Hence, there will be no material effect on the operation of bus services at the Airport.

## 10. SUMMARY AND STATEMENT OF CONFORMITY

- 10.1 The main purpose of this ES Addendum is to respond to each matter raised in LBN's Regulation 22 request, considering the various technical queries set out in Part 1 of LBN's letter which relate directly to the original ES (July 2013), as well as to provide written clarification and supplemental information in response to the other matters raised in Part 2 of the letter.
- 10.2 This ES Addendum also describes the minor revisions to the design of CADP1 which have now been incorporated into the Terminal building and Forecourt design in order to respond to the comments of LBN's Design Review Panel (Part 3 of the letter). Table 2.1 examines whether these design changes have any bearing on the conclusions of the ES.
- 10.3 In order to summarise the additional information and clarifications that have been provided, Table 10.1 below provides an overview of each chapter of the ES in respect of the additional information presented in this ES Addendum. This also constitutes the overarching 'Statement of Conformity' with regard to the original content and findings of the ES, taking into account of this further information.

**Table 10.1: Summary of the ES Addendum and Statement of Conformity**

Environmental Statement Chapter	Regulation 22 Request/ Input to ES Addendum	Response
Chapter 1: Introduction Chapter 2: Site Context and Scheme Description Chapter 3: EIA Methodology	LBN's Regulation 22 letter did not refer to these chapters and it has therefore not been necessary to provide any additional information.	No further information requested.  No material changes to ES Chapters 1-3.
Chapter 4: Consideration of Alternatives	LBN's Regulation 22 letter (Part 1, Item 1) refers to Chapter 4 in relation to Sustainability and Energy (Paragraph 4.51) requesting confirmation that the BREEAM assessment has been undertaken by a licensed and trained assessor.  This is confirmed within Section 8 of the ES Addendum and the RPS BREEAM Assessor Licence is provided within Appendix 8.1.	Further information provided within Section 8.  No material change to ES Chapter 4.
Chapter 5: Planning Context and Existing Controls	LBN's Regulation 22 letter did not refer to these chapters and it has therefore not been necessary to provide additional information.	No further information requested.  No material change to ES Chapter 5.  It should be noted, that the stand alone Planning Update Report provides an overview of planning policy changes since the CADP application was submitted, including the Interim Report of the Airports Commission (December

Environmental Statement Chapter	Regulation 22 Request/ Input to ES Addendum	Response
		2013).
Chapter 6: Development Programme, Demolition and Construction	<p>Items 22-29, Part 1 of LBN's Regulation 22 Letter request additional detail with regard to the construction programme.</p> <p>Further information is provided within Section 3 and the corresponding Appendices, including an Indicative Detailed Programme.</p> <p>In addition, Chapter 6 of the ES has been updated (with track changes) to reflect the additional information and updated figures including the likely construction sequence (Figure 6.1, Revision A). Minor revisions to the construction sequence are described</p>	<p>Chapter 6 of the ES is now superseded by the Updated Chapter 6 included within Appendix 3.5.</p> <p>In terms of the overall conclusions, the revisions to the construction programme and further information provided do not give rise to any new or materially different likely significant environmental effects in comparison with the 'Likely Construction Sequence' considered in the original ES.</p>
Chapter 7: Socio-Economics, Recreation and Community	LBN's Regulation 22 letter did not refer to this chapter and it has therefore not been necessary to provide additional information.	<p>No further information requested.</p> <p>No material change to ES Chapter 7.</p>
Chapter 8: Noise and Vibration	<p>Further information has been provided as requested within LBN's Regulation 22 letter.</p> <p>This is presented within Section 3 and 4 in relation to matters such as potential noise effects associated with Out of Operational Hours (OOH) construction works and clarifications/further information requests in relation to the assessment methodology and assumptions.</p>	<p>In terms of the overall conclusions of the noise and vibration assessment, the further information that has been provided does not give rise to any new or materially different likely significant environmental effects in comparison with the original ES Chapter 8.</p> <p>In relation to construction noise and vibration, the detailed assessment undertaken as part of the ES Addendum in relation to noise levels from OOH working has resulted in identification of a number of key improvements to reduce disturbance, including a 20% reduction of night time piling. Based on these improvements, the residual construction noise impact is now assessed as negligible adverse for the daytime and minor to significant moderate adverse for evening/night time/weekend works.</p>
Chapter 9: Air Quality	Further information has been provided as requested within LBN's	In terms of the overall conclusions of the air

Environmental Statement Chapter	Regulation 22 Request/ Input to ES Addendum	Response
	Regulation 22 letter. This is presented within Section 5 and mainly relate to clarifications regarding the detail of the assessment.	quality assessment, the further information/clarifications that have been provided do not give rise to any new or materially different likely significant environmental effects in comparison with the original ES Chapter 9.
Chapter 10: Townscape and Visual	<p>LBN's Regulation 22 letter did not refer to this chapter and it has therefore not been necessary to provide additional information.</p> <p>As detailed within Table 2.1, Section 2 of the ES Addendum, consideration was given to the design revisions. As these changes are relatively minor, they do not give rise to any new or materially different likely significant environmental effects to those set out in the findings of ES Chapter 10: Townscape and Visual Impact.</p>	<p>No further information requested.</p> <p>No material change to ES Chapter 10.</p>
Chapter 11: Traffic and Transport	Further information has been provided as requested within LBN's Regulation 22 letter. This is presented within Section 6 and includes further detail on matters such as the potential effects on public transport during the construction phase of the CADP.	In terms of the overall conclusions of the traffic and transport assessment, the further information/clarifications that have been provided do not give rise to any new or materially different likely significant environmental effects in comparison with the original ES Chapter 11.
Chapter 12: Water Resources and Flood Risk	LBN's Regulation 22 letter did not refer to this chapter and it has therefore not been necessary to provide additional information.	<p>No further information requested.</p> <p>No material change to ES Chapters 12.</p>
Chapter 13: Ecology and Biodiversity	LBN's Regulation 22 letter did not refer to this chapter and it has therefore not been necessary to provide additional information.	<p>No further information requested.</p> <p>No material change to ES Chapters 13.</p>
Chapter 14: Cultural Heritage	LBN's Regulation 22 letter did not refer to this chapter and it has therefore not been necessary to provide additional information.	<p>No further information requested.</p> <p>No material change to ES Chapters 14.</p>
Chapter 15: Waste	LBN's Regulation 22 letter did not refer to this chapter and it has therefore not been necessary to provide additional information.	<p>No further information requested.</p> <p>No material change to ES Chapters 15.</p>
Chapter 16: Ground	LBN's Regulation 22 letter did not	No further information

Environmental Statement Chapter	Regulation 22 Request/ Input to ES Addendum	Response
Contamination	refer to this chapter and it has therefore not been necessary to provide additional information.	requested.  No material change to ES Chapters 16.
Chapter 17: Climate Change	Further information has been provided as requested within LBN's Regulation 22 letter. This is presented within Section 7.	In terms of the overall conclusions of the climate change assessment, the further clarification that has been provided on Greenhouse Gas (GHG) emissions, does not give rise to any new or materially different likely significant environmental effects in comparison with the original ES Chapter 17.
Chapter 18: Cumulative Effects	LBN's Regulation 22 letter did not refer to this chapter and it has therefore not been necessary to provide additional information.	No further information requested.  No material change to ES Chapters 18.
Chapter 19: Summary of Mitigation and Residual Effects	The overall conclusions of the ES have been considered by the Airport and its consultant team in respect to the minor design revisions and the further information requests.	In terms of the overall summary of the ES, the matters addressed within this ES Addendum and the further information provided do not give rise to any new or materially different likely significant environmental residual effects in comparison original ES.  No material changes to ES Chapter 19.

## 11. GLOSSARY AND ABBREVIATIONS

---

<b>Acronym</b>	<b>Meaning</b>
AADT	Annual Average Daily Traffic
APU	Auxiliary Power Units
AQMA	Air Quality Management Area
AQMP	Air Quality Management Plan
CAA	Civil Aviation Authority
CADP	City Airport Development Programme
CAH	City Aviation House
CEMP	Construction Environmental Management Plan
CHP	Combined Heat and Power
CLP	Construction Logistics Plan
CO <sub>2</sub>	Carbon Dioxide
CPZ	Controlled Parking Zone
DAS	Design and Access Statement
dB	Decibel
DECC	Department of Energy and Climate Change
DfT	Department for Transport
DLR	Docklands Light Railways
EIA	Environmental Impact Assessment
ES	Environmental Statement
ETE	Eastern Terminal Extension
FEGP	Fixed Electrical Ground Power
GFA	Gross Floor Area
GHG	Greenhouse Gases
GLA	Greater London Authority
HGV	Heavy Good Vehicle
LBN	London Borough of Newham
KGV	King George V

kWh	Kilowatts per hour
LCY	London City Airport (“the Airport”)
LTO	Landing and Take Off
M	Metres
Mg	Milligram
NO <sub>2</sub>	Nitrogen Dioxide
NTS	Non-Technical Summary
OBB	Out Bound Baggage
OIP	Operational Improvements Project
OOOH	Out of Operational Hours Working
OLS	Obstacle Limitation Surfaces
PMP	Parking Management Plan
PPG	Planning Policy Guidance
RoDMA	Royal Docks Management Authority
SIS	Sound Insulation Scheme
SWMP	Site Waste Management Plan
TA	Transport Assessment
TfL	Transport for London
TMP	Taxi Management Plan
WTE	Western Terminal Extension

Term	Meaning
Air Noise	Refers to the noise pollution produced by any aircraft or its components, during various phases of a flight.
Aircraft Movements	Any aircraft take-off or landing at an airport. These could be either commercial or non-commercial flights. For airport traffic purposes one arrival and one departure are counted as two movements.
Airfield	An area of land set aside for the takeoff, landing, and maintenance of aircraft.
Airside	The side of an airport terminal from which aircraft can be observed; the area beyond security checks and passport and customs control.
Apron	That part of an airport, other than the manoeuvring areas intended to accommodate the loading and unloading of passengers and cargo, the refuelling, servicing, maintenance and parking of aircraft, and any movement of aircraft, vehicles and pedestrians necessary for such purposes. Also referred to as the 'Ramp'.
Arrivals Concourse	Landside area receiving arriving passengers who have emerged from the baggage reclaim or customs facilities, usually containing a 'meters and greeters area' as well as retail and other support functions.
Baggage Reclaim	The baggage claim area is an airport terminology that describes the area of an airport terminal where one claims checked-in baggage.
Baseline	2012 constitutes the most reliable and robust 'baseline year' and ensures a full calendar year of data can be assessed.
Bombardier CS100	The Bombardier C Series is a family of narrow body, twin-engined, medium range jet airliners
Code C aircraft	A standard of aircraft size specified by the International Civil Aviation Organization.
Crossrail	A railway construction project under way mainly in central London. Its aim is to provide a high-frequency commuter/suburban passenger service.
Design year	This year represents the completion of the CADP1 and CADP2 works.
Dolphins	Structural remains are visible in the dock, in the form of fixed jetties known as 'Dolphins'.
Eastern Ancillary Buildings	including: Taxi /Car Rental Services Building, Taxi Marshall's Kiosk, Vehicle Control Point facility, and Eastern Energy Centre;
Eastern Energy Centre	(Specific to the Airport) Proposed Energy Centre situated in the eastern Dockside area and housing various elements of plant that service the proposed Eastern Terminal Extension and proposed Forecourt. Part of the Completed CADP.
Eastern Terminal Extension	(Specific to the Airport) Proposed Eastern Extension of the main Terminal, including the Arrivals Concourse Building, the Main Processor Building, the Outbound Baggage Extension, the Eastern Pier and Noise Barrier. Part of the Completed CADP.
Facilitating Works	(Specific to the Airport) Part of the Interim CADP, including the temporary Coaching Building and associated link bridge, airside road alterations, extension of the concrete deck for an expanded outbound baggage facility (OBB), a new light-weight enclosure for expanded OBB, and Noise Barrier. Part of the Interim CADP.



Forecourt	(Specific to the Airport) Proposed new multi-modal transport area including pick-up and drop-off accommodation for buses, taxis, and private cars, as well as landscaped areas adjacent to the Eastern Terminal Extension. Part of the Completed CADP.
Ground Noise	Noise referred to by aircrafts on the ground
Hotel	(Specific to the Airport) Dockside facility with up to 260 bedrooms, submitted as a separate outline application: 'Planning Application CADP2'.
Interim CADP	(Specific to the Airport) The compliment of projects that includes: Phase 1 Western Terminal Extension, Western Energy Centre, temporary OBB extension, temporary Coaching Facility, temporary Noise Barrier, additional 3 stands, and a portion of taxi lane. These elements are submitted as a separate detailed application: 'Planning Application CADP1'.
Jet Centre	Corporate Aviation Centre located at the western side of the Airport.
L <sub>A90</sub>	Statistically the LA90 value is often used to describe background noise levels and is defined as the level exceeded for 90% of the measured time.
L <sub>Aeq</sub>	The Equivalent Continuous sound Level (LAeq) is the level of a notional steady sound, which at a given position and over a defined period of time would have the same A-weighted acoustic energy as the fluctuating noise.
Lift	Lift is the force that directly opposes the weight of an aircraft and holds the aircraft in the air.
Load Factors	The average assumed passenger occupancy of a flight, expressed as a percentage.
Noise Barrier	A physical barrier to provide noise insulation
Noise Contours	A continuous line on a map that represents equal levels of noise exposure.
Noise Factored Movements	A numerical factor applied to a noise source, dependent on the time, type or level of noise produced which have an effect of limiting the number a aircraft using the Airport
Obstacle Limitation Surfaces (OLS)	Limits in relation to the height of permanent and temporary obstacles around the Airport to ensure the safety of aircraft. This surface comprises a graduated lateral height profile which allows taller obstacles to exist as the distance from the runway increases.
Out of Operational Hours (OOOH)	Periods when the Airport is closed. Out of the following operational hours: 06:30 to 22:00 hours during the week; 06:30 to 12:00 on Saturdays and, 12:30 to 22:00 on Sundays.
Pier	A building housing departing gate areas, departures corridors, as well as arrivals corridors that permit the circulation of passengers to and from the aircraft stands in a controlled fashion.
Pilling	Post like foundation driven into the ground to support a structure.
Residual Effect	The remaining effects of an impact after mitigation has been implemented
Service Yard	(Specific to the Airport) The triangle-shaped external space between the west extent of the existing Terminal building and Hartmann Road utilised for temporary accommodation and service deliveries. Otherwise known as the 'Triangle'.
Study Area	Designated area defined for an assessment.



Taxilane	Zone for circulation of aircraft moving between the runway and the stands.
Terminal	(Specific to the Airport) A temporary two-storey structure comprising three coaching gate room for departing passengers, and linked to the main terminal departures lounge at the upper level. Part of the Interim CADP.
Transitional Phase	During 2019, the majority of the proposed CADP works will be under construction. This year therefore represents an interim scenario ongoing construction and partial operation of the CADP. The forecasts that have been calculated are based on the infrastructure that will be in place at this time.
Triangle	(Specific to the Airport) See 'Service Yard'.
Western Energy Centre	(Specific to the Airport) Proposed Energy Centre situated in the western Service Yard and housing various elements of plant that services the Western Terminal Extension and the Facilitating Works Coaching Facility.