

City Airport Development Programme (CADP1)

Condition 94: TEMPORARY CONSTRUCTION NOISE BARRIER



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1.0 INTRODUCTION

1.1 General

1.1.1 The City Airport Development Programme (CADP1) planning application (13/01228/FUL) was granted planning permission by the Secretaries of State for Communities and Local Government and Transport in July 2016 following an appeal and public inquiry which was held in March/April 2016.

1.1.2 Condition 94 of the CADP1 permission requires that:

Before the Commencement of the relevant Phase of Development a temporary noise barrier along the southern boundary of the Airport (between City Aviation House and the proposed construction compound at the western end of Hartmann Road) shall be erected and retained in accordance with details that shall have been submitted to and approved in writing by the Local Planning Authority. The barrier shall meet the following minimum specification:

- *3m in height above local ground level;*
- *imperforate (i.e. there should be no gaps at joints or the base); and*
- *minimum superficial surface mass shall be at least 7 kg/m².*
- *The temporary construction noise barrier shall be retained for the duration of the construction works.*

Upon completion of the Development the temporary noise barrier shall be dismantled and removed from the Airport in its entirety.

Reason: To ensure a satisfactory standard of Development and to safeguard the amenities of the surrounding area.

- 1.1.3 This submission seeks the approval of the details of the temporary noise barrier as well as a phased installation. The phased delivery will ensure that the erection of a short section of the construction noise barrier, shown in Green on the Plan at Appendix 1, will occur prior to the start of the demolition of a single concrete dolphin 7 which is located in KGV Dock adjacent to the existing terminal and the forecourt (See Figures 1 & 2 at Appendix 3), whilst the remainder will be installed prior to the commencement of the remaining CADP1 construction activities as per the approved Construction Phasing Plan under condition 4.

2.0 DESCRIPTION OF THE TEMPORARY CONSTRUCTION NOISE BARRIER

2.1 Purpose of Noise Barrier

- 2.1.1 In accordance with the requirements of condition 94, a 3 metre high temporary construction noise barrier will be installed to protect local residents to the south of the Airport from construction noise during the build out of CADP1.

2.2 Location of Barrier

- 2.2.1 The proposed location of the temporary construction noise barrier is shown at Appendix 1 and will extend from the eastern end of City Aviation House (CAH) to the western end of the proposed CADP1 construction compound. The construction compound itself will include 3 metre hoarding and therefore in conjunction with the 3 metre high noise barrier will, in effect, extend from CAH to the eastern extents of Hartmann Road where the new eastern access will be created. The details of the construction compound have been submitted as required under condition 96 of the CADP1 permission.
- 2.2.2 An additional construction noise barrier will be erected south of Hartmann Road along the southern boundary of the Airport to protect the residential properties at Woodman Street which are adjacent to the Airport site. This noise barrier was included as a mitigation measure in Chapter 8 (Noise) of the Updated Environmental Statement (UES).

2.3 Acoustic Specification

- 2.3.1 The temporary construction noise barrier will be 3m in height above local ground level and will be installed with appropriate supports and panels such that, as a minimum, the following standards will be met:
- barrier will be imperforate (i.e. there shall be no gaps at joints or the base).

- the minimum superficial surface mass will be at least 7 kg/m² (for example, 18mm exterior grade plywood will meet this mass requirement).
- 2.3.2 In practice, the panelling and structural form of the barrier is likely to be greater than this to satisfy wind loading and structural constraints associated with its installation. This will be subject to the contractor as the barrier is being installed.
- 2.3.3 Whilst the barrier will be imperforate without any gaps at joints or the base, there will be a number of vehicle access/egress points as well as pedestrian access/egress points required along the temporary noise barrier. These are shown indicatively at Appendix 1 and include vehicular access to the construction compound; taxi feeder park; KGV House (offices) and the long/short stay car parks. Pedestrian access will be provided to KGV House and CAH House. The various access points will be subject to the CADP1 construction programme and have been modelled by Bickerdike Allen Partners. The various access points were found to have no impact on the overall noise performance of the noise barrier. This assessment is included at Appendix 2.

3.0 PROGRAMME OF CONSTRUCTION OF TEMPORARY NOISE BARRIER

3.1 Installation and Maintenance

- 3.1.1 A small section of the construction noise barrier, adjacent to CAH and shown in green on the figure in Appendix 1, is to be installed in the first instance. This will be completed prior to the demolition of concrete Dolphin 7 which is located in KGV dock adjacent to the existing terminal buildings and forecourt. (see Figures 1 & 2 at Appendix 3) While this dolphin is being demolished, the remainder of the temporary construction barrier will continue to be erected and will be fully installed, prior to the commencement of any other CADP1 construction works approved in the Construction Phasing Plan (Condition 4).
- 3.1.2 A noise assessment of the Dolphin demolition works has been undertaken by Bickerdike Allen Partners and is included as Appendix 3 to this report. This finds that the demolition of this single Dolphin, which will be undertaken during the daytime, will give rise to noise levels which are likely to be barely noticeable at the nearest noise sensitive receptors for much of the time.
- 3.1.3 The temporary noise barrier, once erected, will remain in-situ in its entirety until construction is completed, unless otherwise agreed with London Borough of Newham.

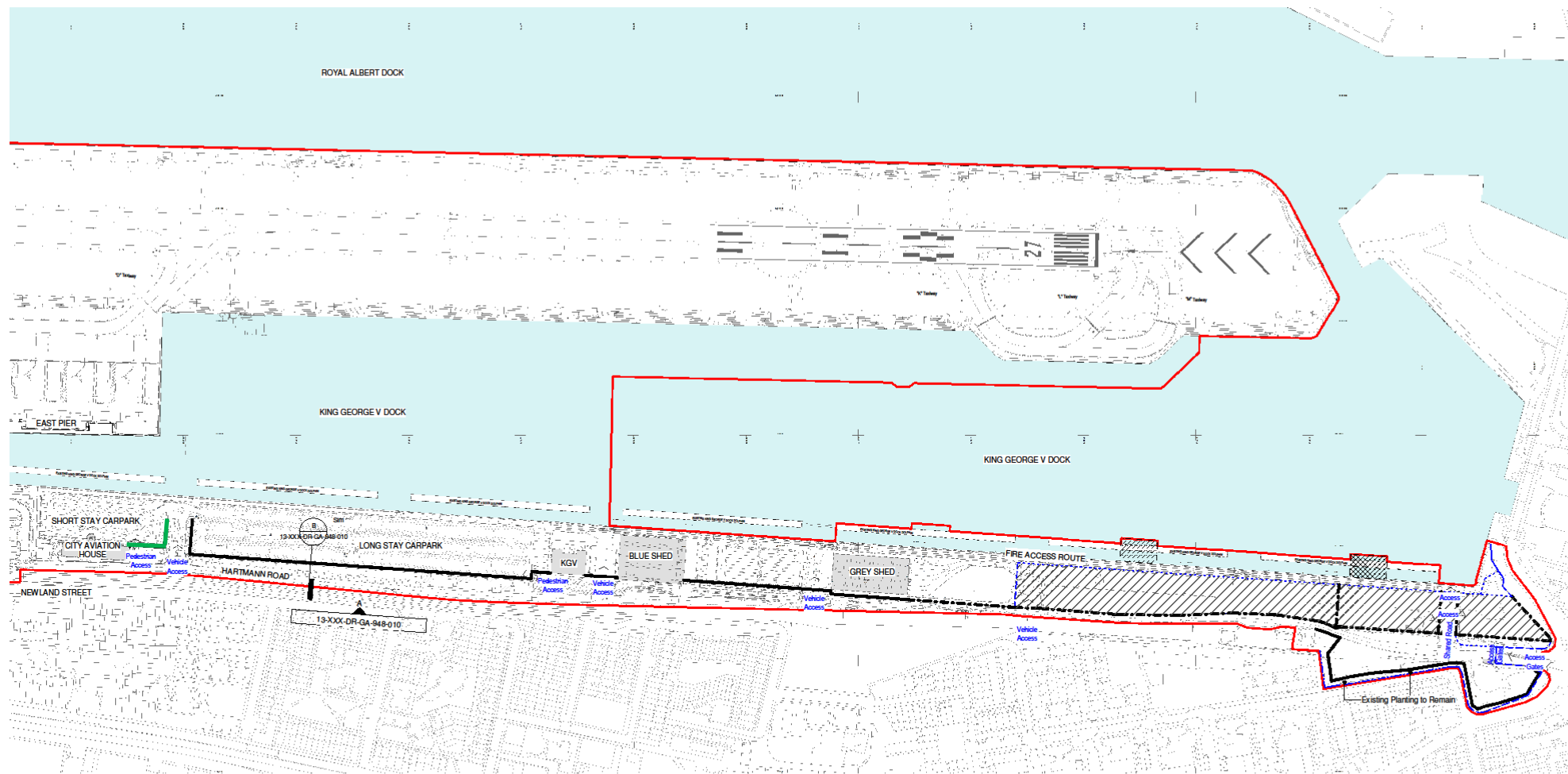
- 3.1.4 The noise barrier will be installed by a specialist hoarding contractor and LCY will appoint the hoarding contractor to service the hoarding through the life of the CADP development so it's integrity and effectiveness is maintained.

3.2 Removal

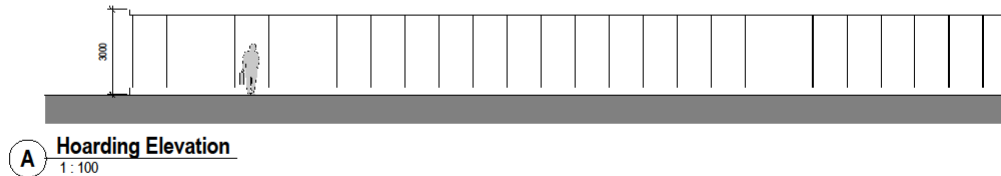
- 3.2.1 On completion of the construction works for CADP1, the temporary noise barrier will be dismantled, all associated elements removed from the site, and the ground beneath the barrier returned to its original condition.

APPENDIX 1

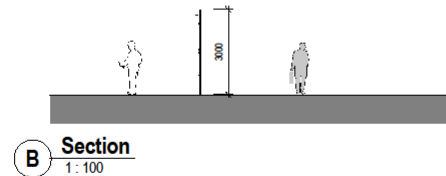
Location and Extents of Temporary Noise Barrier



1 Hartmann Road Noise Barrier - Pre-Commencement Condition 94
1:2000



A Hoarding Elevation
1:100



B Section
1:100

Note:
Contractors are responsible for the verification of all dimensions on site and the architect is to be informed of any discrepancy. Do not scale from the drawing. Use board dimensions only. This drawing may contain Ordnance Survey Mastermap and raster data. © Crown Copyright and database right 2015. Ordnance Survey Licence number 100006116.
Read in conjunction with relevant specification clauses and other consultants drawings and specifications.
This drawing shows the general principles of design intent. The contractor is required to survey and take relevant dimensions and produce workshop drawings for fabrication and construction. In-house survey subsequent to demolition may be required to inform the design.

- Legend**
- Proposed Construction Compound
 - Proposed Temporary Barge Berths & Crane Platforms
 - Existing Timber Palisade
 - Existing Metal Palisade
 - Proposed Mesh Fence
 - Proposed Construction Noise Barrier - 3 metres
 - Proposed Construction Compound Timber Hoarding and Noise Barrier - 3 metres
 - Application Boundary

Noise barrier
installed prior to
dolphin demolition

C	MS	09/12/2016	For Approval
B	MS	10/11/2016	For Planning Approval
A	MS	25/10/2016	For Planning Approval

Rev	Dim	Date	Description
1			

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the
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Noise Barrier Details
Pre-Commencement Cond. 94

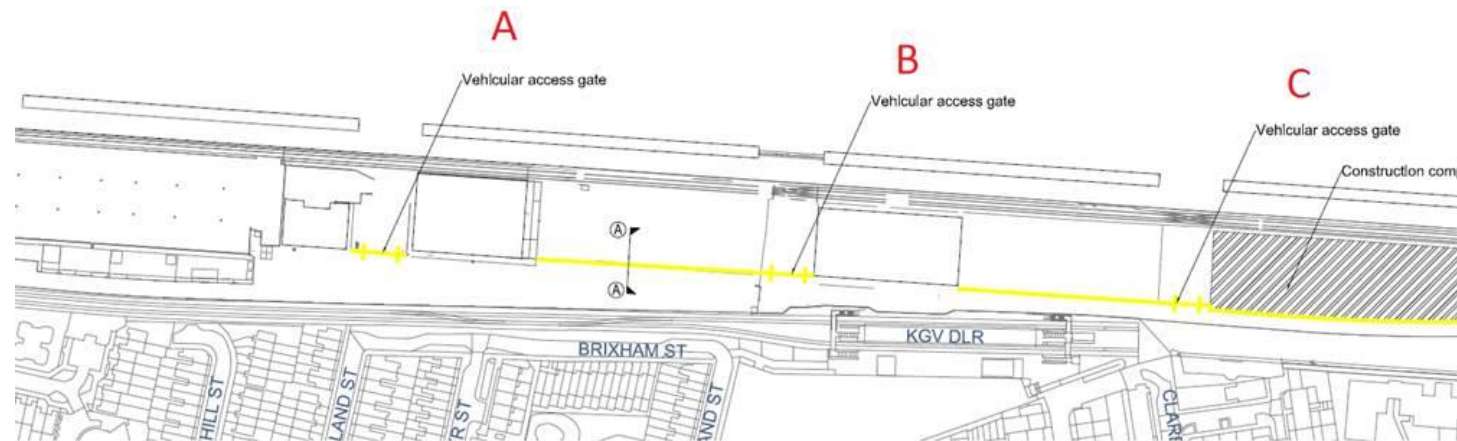
Project Name CADP	Drawing Number 5077	Revision Architecture
Client London City Airport	Drawing Operator Pascall+Watson	Person of Issue For Approval
Drawn By MS	Checked By TA	Approved By MN
Proj Code A400PAW	Disc Date A 13/XXX DR/GA	Disc Description 948-010
Rev C/S3		

APPENDIX 2

Assessment of Access and Egress Points on Effectiveness of Temporary Noise Barrier

BAP have carried out a review of the vehicular access gates against the assumptions used within the construction noise prediction model used in the CADP Updated Environmental Statement.

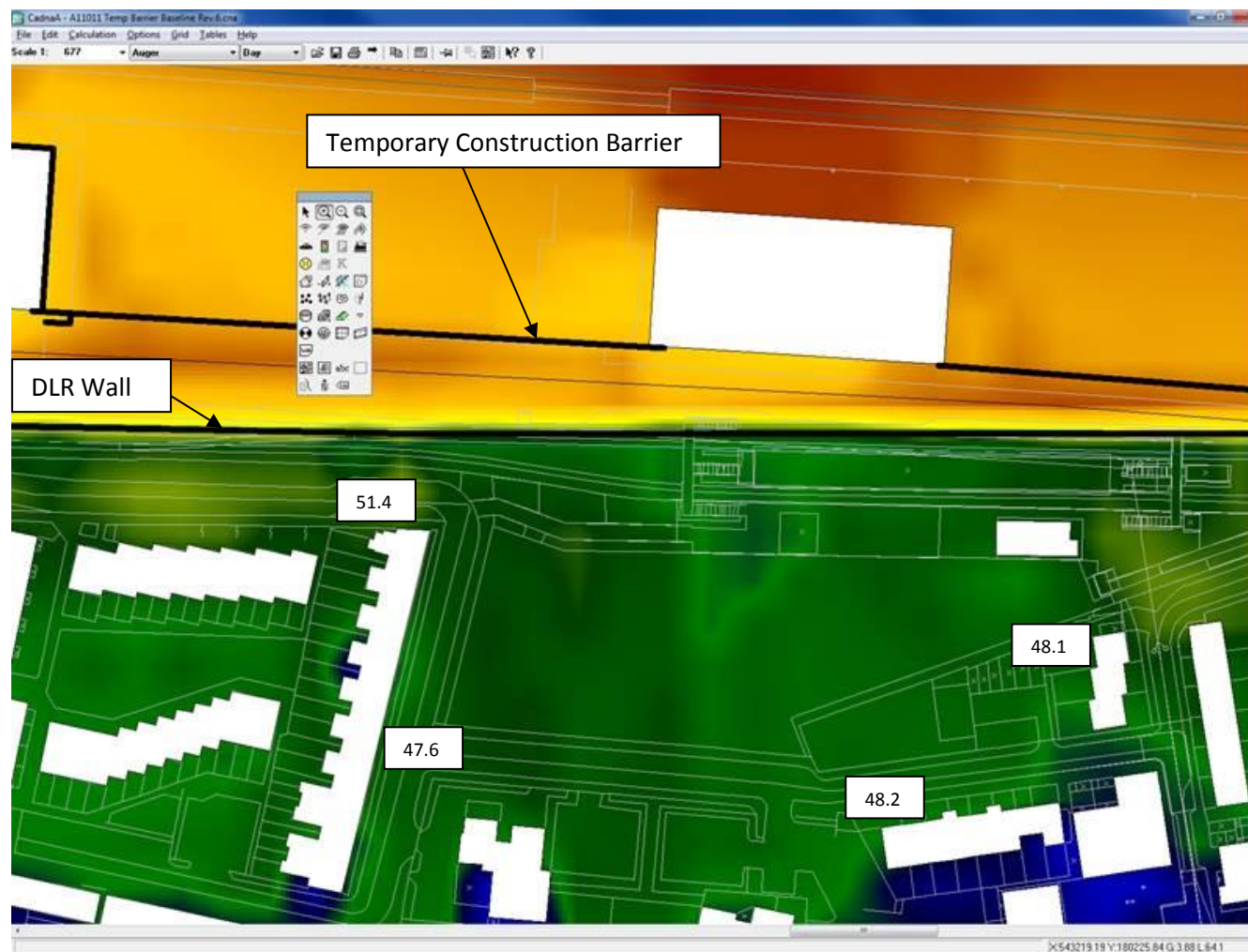
The gates have been assessed as A, B and C below.



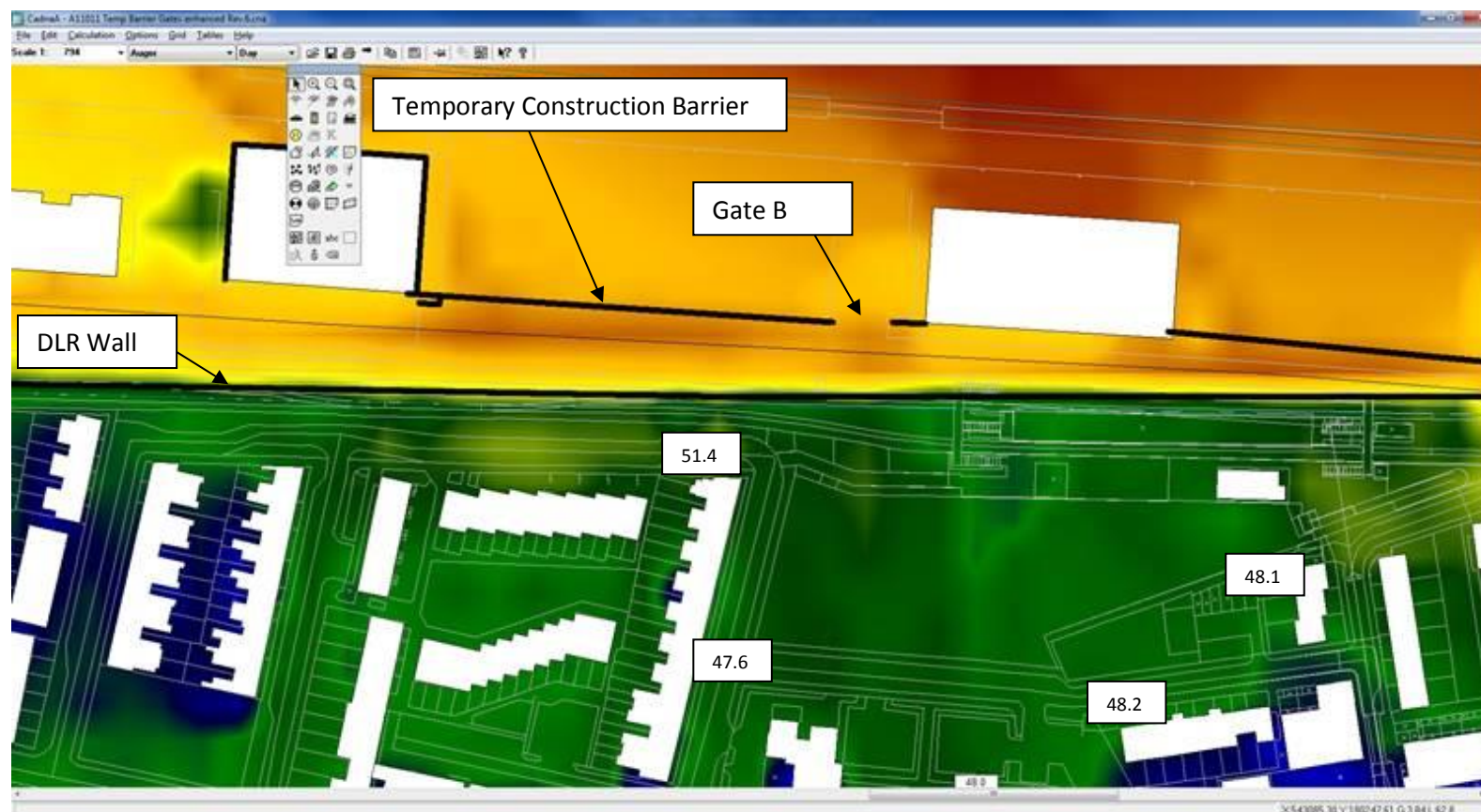
Gate A – Does not need to be a solid gate for acoustic reasons. Our noise assessment undertaken for the CADP UES assumed a gap here for access by taxis so assumed the same as the gap proposed now for the car park.

Gate B – This was assumed as a solid part of the noise barrier in the CAPD noise assessment. BAP have modelled this with and without a gap. The results can be seen below. There is no significant change in predicted noise level. This is in part due to the barrier performance provided by the DLR wall at this location. As a result, Gate B does not need to be a solid gate for acoustic reasons.

Noise Map With continuous barrier (dB L_{Aeq,15min})



With open gate (dB $L_{Aeq,15min}$)



Gate C – Does not need to be a solid gate for acoustic reasons. Our CADP UES noise assessment assumed a gap/access gate here for access to the contractor's compound.

In summary, the proposed gaps in the noise barrier for Gates A, B and C will have no material effect on the acoustic performance of the total noise barrier as predicted in the CADP UES construction noise calculations.

APPENDIX 3

Demolition Noise from Dolphin Removal

Bickerdike Allen Partners (BAP) have assessed the noise expected from the demolition of dolphin 7 shown in Figures 1& 2 below.

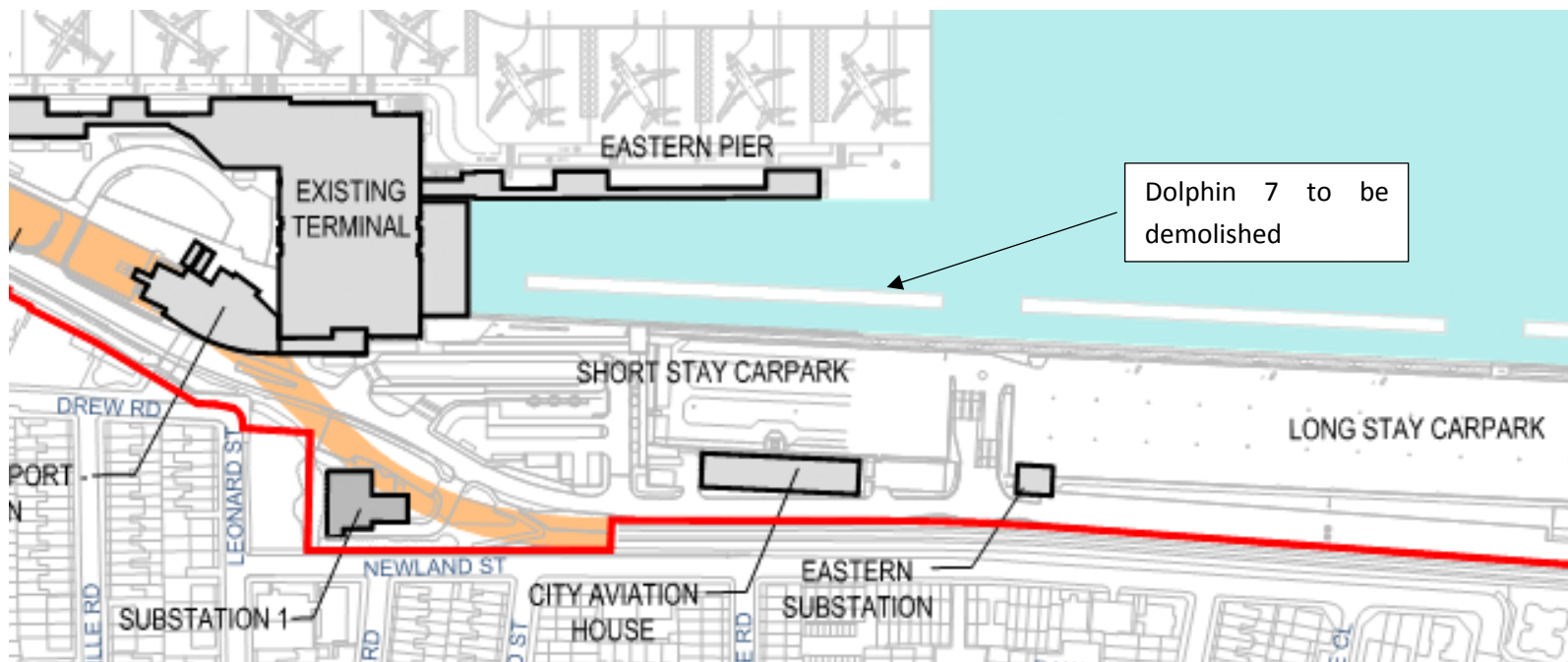


Figure 1: Location of Dolphin 7



Figure 2: Extent of Construction Noise Barrier to be installed prior to commencing demolition of Dolphin 7

The de-construction will begin by using a diamond saw to intermittently cut the concrete into blocks for removal by barge from the work zone. The wet saw cutting equipment will involve the use of a walk behind diamond floor saw as shown in Figure 3 below which will be located behind a three sided screen with echobarriers or similar affixed to Heras fencing. The works will take place during normal working hours (0800hrs- 1800hrs Monday to Friday and 0800hrs-1200hrs on a Saturday). No night time works are required for the demolition of Dolphin 7.

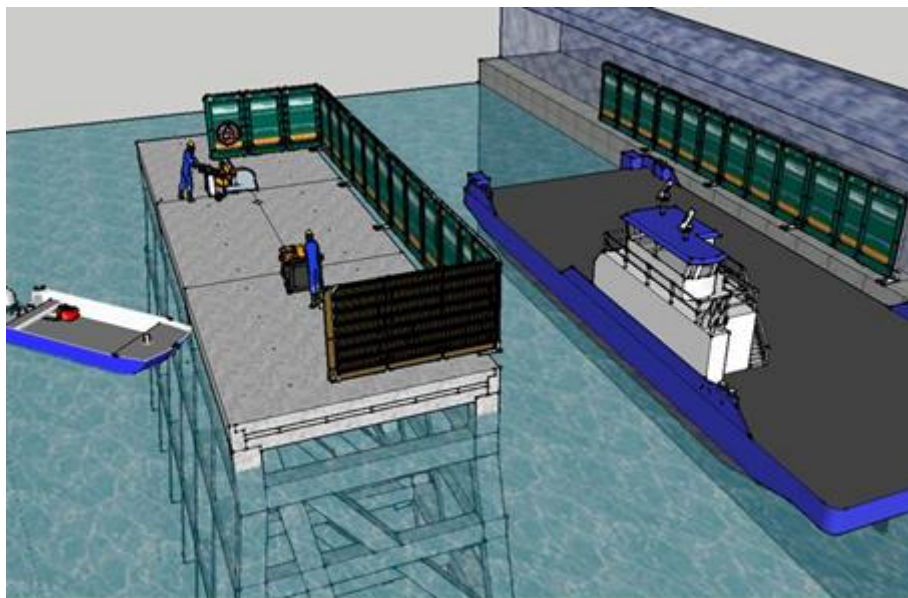


Figure 3: Methodology

Trial cuts using the above methodology were carried out at London City Airport on 16 October 2017 and were monitored by RSK and observed by Officers from London Borough of Newham. During the trial cut on 16 October 2017, a noise level of 78.5 dB(A) was recorded at 13 metres with the 3 sided enclosure shown above positioned between the source and the sound level meter. A secondary screen was also deployed along the northern edge of the dock (as shown in Figure 3). A table of noise readings obtained by RSK during the trials are presented below.

ID	Location	Duration, T / mm:ss	Measured Noise Level / L _{Aeq, T} dB	Notes
#200	L1 - Dolphin Dock Sitting Area	03:37	58.2	Baseline noise (no aircraft) – SLM positioned 2m behind Heras fencing
#202		00:22	67.9	Operational cutting noise – SLM positioned 2m behind Heras fencing. Cutting dominant source during measurement.
#203		01:30	72.1	Operational cutting noise – SLM positioned 2m behind Heras fencing. Cutting dominant source during measurement.
#204		03:47	70.2	Operational cutting noise – SLM positioned 2m behind Heras fencing. Cutting dominant source during measurement.
#207		00:41	78.5	Operational cutting noise – SLM at dock edge, in front of Heras fencing. Cutting dominant source during measurement.
#201	L2 - Avis Car Park	03:37	60.5	Baseline noise (no aircraft) – SLM positioned within Avis car park.
#206		01:25	59.6	Operational cutting noise – cutting noise inconsistent and barely audible during lulls in the residual noise environment.

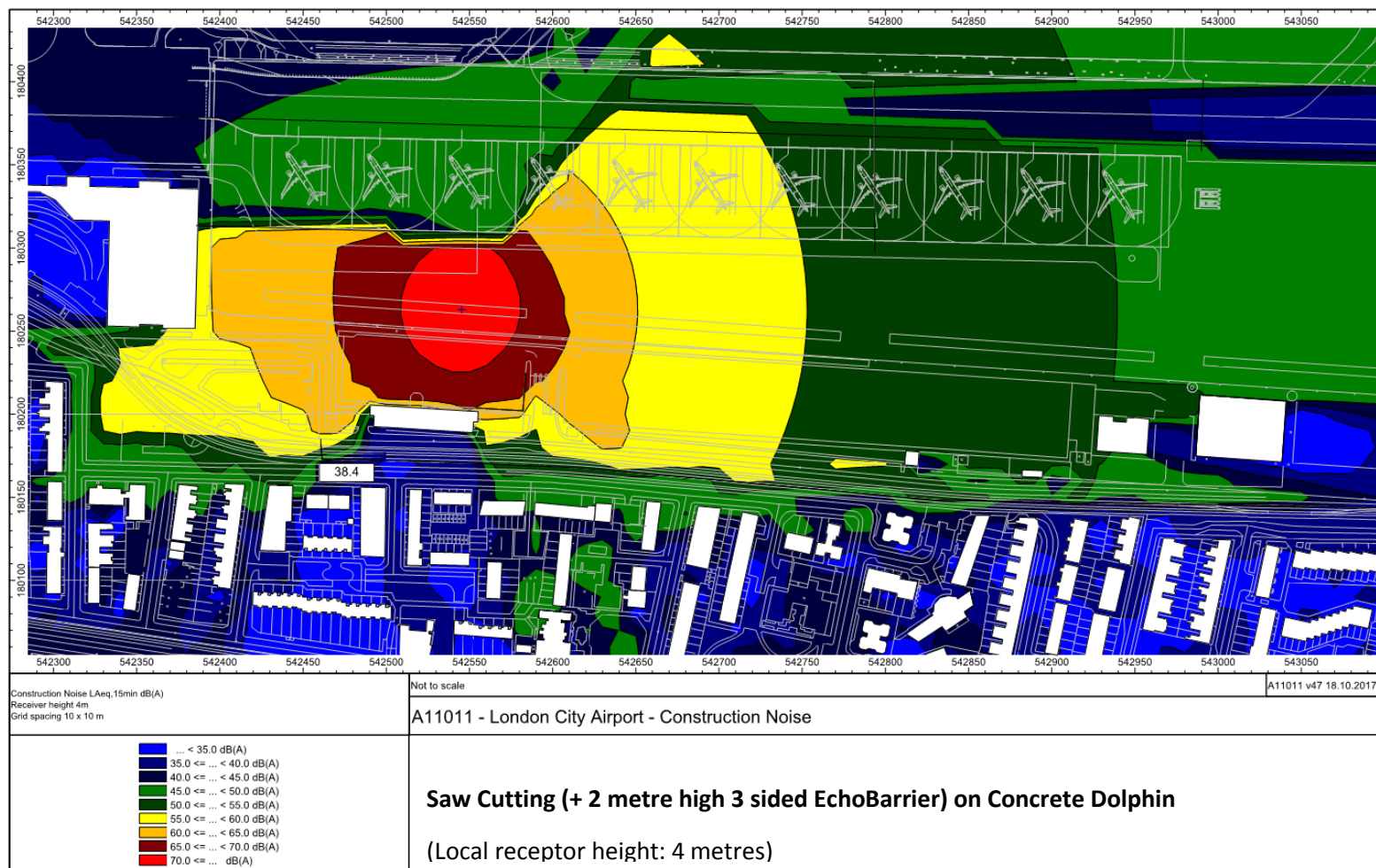
Measured Noise Levels – Source Monitoring (Source of Data: RSK)

Position L1 is 15 metres from the noise source, located 2 metres behind the secondary screen positioned along the dock edge.

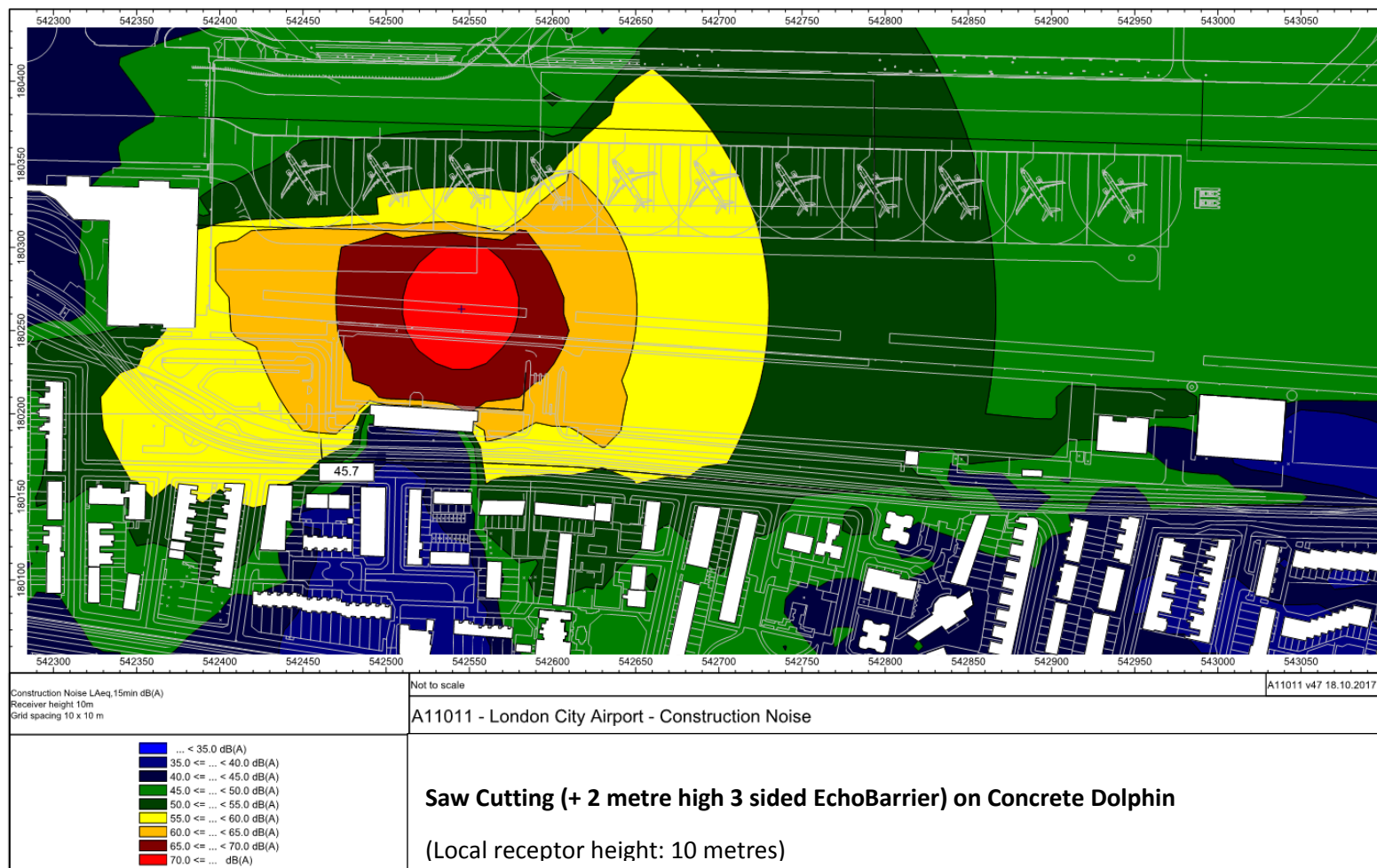
Position L2 is 55 metres from the noise source, in the Avis car park, to the south of the airport drop off point.

The CADNA noise models below, which were derived from the observed noise levels during the trial cuts, take account of the extent of the construction noise barrier that will be in place (as shown in Figure 2 above) and indicate the spread of noise to the environment predicted at a local receiver height of 4 metres and 10 metres, assuming the 3-sided enclosure is in place locally around the diamond saw. These models assume the 3-sided screen shown above is in place but take no account of any additional screening that might be provided by the dockside screen or the glass walkway (as a worst case assessment).

Sound Level, dB(A), at local height of 4 metres from saw cutting on dolphin



Sound Level, dB(A), at local height of 10 metres from saw cutting



The above noise maps indicate that the noise level generated by the sawing activity at the nearest dwellings along Newland Street will vary between around 45 to 55 dB(A), depending on the location and height of the receptor.

The underlying background noise during the daytime in the area to the south of the airport varies with position during the daytime and is recorded as lying in the range of around 50 to 55 dB $L_{A90,T}$ in close proximity to Newland Street with an ambient level of around 55 to 60 dB $L_{Aeq,T}$, as indicated in Chapter 8 of the Updated Environmental Statement for CADP1. As a result, the noise from sawing is likely to be barely noticeable, at the nearest receptors for much of the daytime.

The sawing process is to be undertaken only during the week and also only during daytime hours so the resulting noise levels will lie below the prevailing ambient noise level and generally below the prevailing background noise level at the nearest receptors.

This shows that the de-construction of this single dolphin using diamond sawing in conjunction with local screening, following the installation of the first section of the temporary construction noise barrier, will produce noise levels that are likely to be barely noticeable at the nearest noise sensitive receptors for much of the time.