Section 73 Minor amendment application for the introduction of a Dry Air Cooler to the consented planning application 2013/0884/P

1. Introduction

This minor amendment is being submitted with regards to planning consent 2013/0884/P. In order to support the consented Combined Heat and Power (CHP) engine operation, heat rejection equipment is required to be installed. This is to be provided in the form of a flat-bed dry air cooler installed at the southern end of the Phoenix Court roof.

2. Background

Planning consent was granted under reference 2013/0884/P on 25 April 2013 for:

Installation of flue from basement to the roof level at the east elevation, installation of gas fired boilers and 1 CHP engine to the basement level associated change of use from office (Class B1) to plant (Sui Generis).

Phase 1 of the scheme was completed in 2015, with Phase 2 including the installation of a CHP engine triggered at the end of 2017. The complete phase 2 is expected to commence operation in autumn 2018.

3. Proposed Amendment

Heat rejection equipment is required for operation of the CHP engine. The equipment must be located with open access to the air for effective heat rejection. Due to the constraints of the site, the only suitable location is considered to be the roof level. Pipework to connect the equipment is already pre-installed within the existing flue housing, therefore installation works will be kept to a minimum.

Several locations were considered for the equipment, including the top of the stair core attached to the flue, but the uppermost roof level above the penthouse apartments was considered the most suitable as it provided a location which minimised visual impact to street level views and from the penthouse dwellings themselves. This location also has a lower chance of audibility as it is further from the edge of the building.

Structural surveys have verified that the location is suitable for the intended loading. A large telecoms installation was recently installed on the roof, and it is proposed to use the same structural solution installing the plant mounted on steel beams.

4. Acoustic analysis

A detailed acoustic assessment was completed to demonstrate that the proposed installation would adhere to the noise and vibration limits defined within the planning conditions. A summary of the analysis is provided below:

The requirements of the Local Authority with regards to plant noise emissions are stated in Planning Condition 2 which states:

"*Noise levels at a point 1 metre external to sensitive facades shall be at least 5dB(A) less than the existing background measurement (LA90), expressed in dB(A) when all plant/equipment (or any part of it) is in operation unless the plant/equipment hereby permitted will have a noise that has a distinguishable, discrete continuous note (white, hiss, screech, hum) and/or if there are distinct impulses*

(bangs, clicks, clatters, thumps), then the noise levels from that piece of plant/equipment at any sensitive façade shall be at least 10dB(A) below the LA90, expressed in dB(A)"

The lowest existing background measurement (LA90) was recorded during the night and registered as 48dBA. As such, the plant noise limit permitted at the nearest receptors, which are the flats overlooking Purchese Street, is 43 dBA.

By positioning the cooler on the uppermost level of the roof in its proposed orientation, it is a reasonable distance away from the nearest sensitive façade and indeed the building itself reduces the directivity of the noise to the sensitive facades.

The assessment predicts a noise level at the receptor of 37dBA, which is below its criterion of 43dBA.

The CHP Dry Air Cooler will be positioned on a frame onto the existing roof which is understood to comprise 200mm normal weight concrete and will be mounted on anti-vibration measures. Due to these factors, it is predicted that noise from this unit will be inaudible in the residential apartments below.

The full acoustic report is appended to this application for further review – *'Somers Town CHP Dry Air Cooler Assessment – Tech Note.pdf'.*

ACOUSTIC TECHNICAL NOTE

Reference:	8474/ATN01.PNA.0
Revision:	0
To:	Struan Carmichael
From:	Sam Walker
Date:	11 May 2018
Project:	Somers Town Energy Centre
Subject:	CHP Dry Air Cooler Assessment

1.0 INTRODUCTION

In order to provide evidence for the discharge of Planning Condition 2 for the installation of a rooftop dry air cooler on a block of flats on Purchese Street, London, a noise assessment to the nearest noise sensitive properties has been carried out.

RBA Acoustics have been commissioned by Vital Energi to undertake measurements of the prevailing noise conditions at the site and to determine the atmospheric noise emissions in accordance with London Borough of Camden's requirements.

2.0 ENVIRONMENTAL NOISE SURVEY

General

Unattended noise monitoring of the prevailing background noise was undertaken at roof level from Friday 23 February to Monday 26 February 2018.

Instrumentation

The following equipment was used for the measurements.

Table 8474/T1 – Equipment Details

Manufacturer	Model Type	Serial No.	Calibration	
			Certificate No.	Expiry Date
Norsonic Type 1 Sound Level Meter	Nor140	1406971	4715702365	11 September 2019
Norsonic Pre Amplifier	1209	21206		
Norsonic ½" Microphone	1225	271059	4715702365	11 September 2019
Norsonic Sound Calibrator	1251	35016	U26573	11 September 2019

The sound level meter was calibrated both prior to and on completion of the survey with no calibration drift observed.

Measurement Location

A microphone was fixed to a railing on the roof of the building approximately 4m from the nearest residential window.

The measurement location is also shown in the attached Site Plan 8474/SP1 and Photograph 8474/P1.

Site Description

The site is located in Camden, between Brill Place and Purchese Street. During our time on site there were very occasional vehicular movements on both roads. The main source of noise in the area was due to ambient distant traffic noise from Midland Road and Ossulston Street.

3.0 ENVIRONMENTAL NOISE SURVEY

The noise levels measured at Position 1 are shown as time-histories on the attached Graphs 8474/G1-G2.

In order to ensure a worst case assessment the lowest background L_{A90} noise levels measured at Position 1 have been used in our analyses. The lowest L_{A90} and the period averaged L_{Aeq} dB noise levels measured are summarised below.

Table 8474/T2 – Measured Noise Levels

Measurement Period	Position 1 - Roof	
	L_{90} (dBA)	L_{eq} (dBA)
Daytime (07:00 – 23:00)	50	56
Night-time (23:00 – 07:00)	48	52

4.0 ENVIRONMENTAL NOISE SURVEY

The requirements of the Local Authority with regards to plant noise emissions are stated in Planning Condition 2 which states:

> *"Noise levels at a point 1 metre external to sensitive facades shall be at least 5dB(A) less than the existing background measurement (LA90), expressed in dB(A) when all plant/equipment (or any part of it) is in operation unless the plant/equipment hereby permitted will have a noise that has a distinguishable, discrete continuous note (white, hiss, screech, hum) and/or if there are distinct impulses (bangs, clicks, clatters, thumps), then the noise levels from that piece of plant/equipment at any sensitive façade shall be at least 10dB(A) below the LA90, expressed in dB(A)."*

In line with the above the relevant plant noise limits are as follows:

Position 1 – Roof – 43 dBA

5.0 ASSESSMENT ASSUMPTIONS

Proposed Mechanical Services

1No. CHP Dry Air Cooler

Operating Hours

We understand that the proposed mechanical services plant may be required to operate during both daytime and night-time periods, i.e. 24 hours a day.

Noise Levels

Information regarding the noise level of the proposed plant has been forwarded to us by Vital Energi and are presented in Table 8474/T3.

Table 8474/T3 – Plant Noise Levels

Item	Model	Sound Level (dBA)	Parameter
1No. CHP Dry Air Cooler	Gunter	50 dBA	Lp at 1m (each unit)

All recommendations have been based on this noise data and will not hold should plant be reselected and the noise levels increase.

6.0 NOISE EMISSIONS TO RESIDENTIAL PROPERTIES

Location of Nearest Residential Windows

The nearest noise sensitive receptors to the CHP Dry Air Cooler are the flats within the same building overlooking Purchese Street.

Calculation of Noise Levels at Nearest Residential Window

Our calculation method for predicting noise level from the proposed plant at the nearest residential windows, based on the information stated above, is summarised below.

- Source Term SPL
- Directivity
- Screening
- 20LogR Distance Attenuation

Table 8474/T4 – Predicted Noise Levels

Noise source	Predicted Noise level at receptor (dBA)	
	Prediction	Criterion
CHP Dry Air Cooler	37	43

CHP Dry Air Cooler Positioning

Four our assessment, we have assumed the CHP Dry Air Cooler will be rotated 90 degrees from the original proposal as indicated by the yellow rectangle on the attached Site Plan 8474/SP2.

7.0 NOISE TRANSFER TO RESIDENTIAL APARTMENTS BELOW

We understand the CHP Dry Air Cooler will be positioned onto the existing roof which is understood to comprise 200mm normal weight concrete. The unit will be mounted on a steel frame base with a restrained caged steel spring isolator and with having a 40mm static deflection. Due to these factors we predict noise from this unit to be inaudible in the residential apartments below.

8.0 SUMMARY

A detailed assessment of noise emissions from the CHP Dry Air Cooler of the proposed Somers Town Energy Centre has been undertaken.

The results of the assessment indicate that, providing certain acoustic performance requirements and attenuation measures are included as outlined herein, levels of noise transfer from items of mechanical services plant associated with the scheme achieve compliance with the requirements detailed within Planning Condition 2.

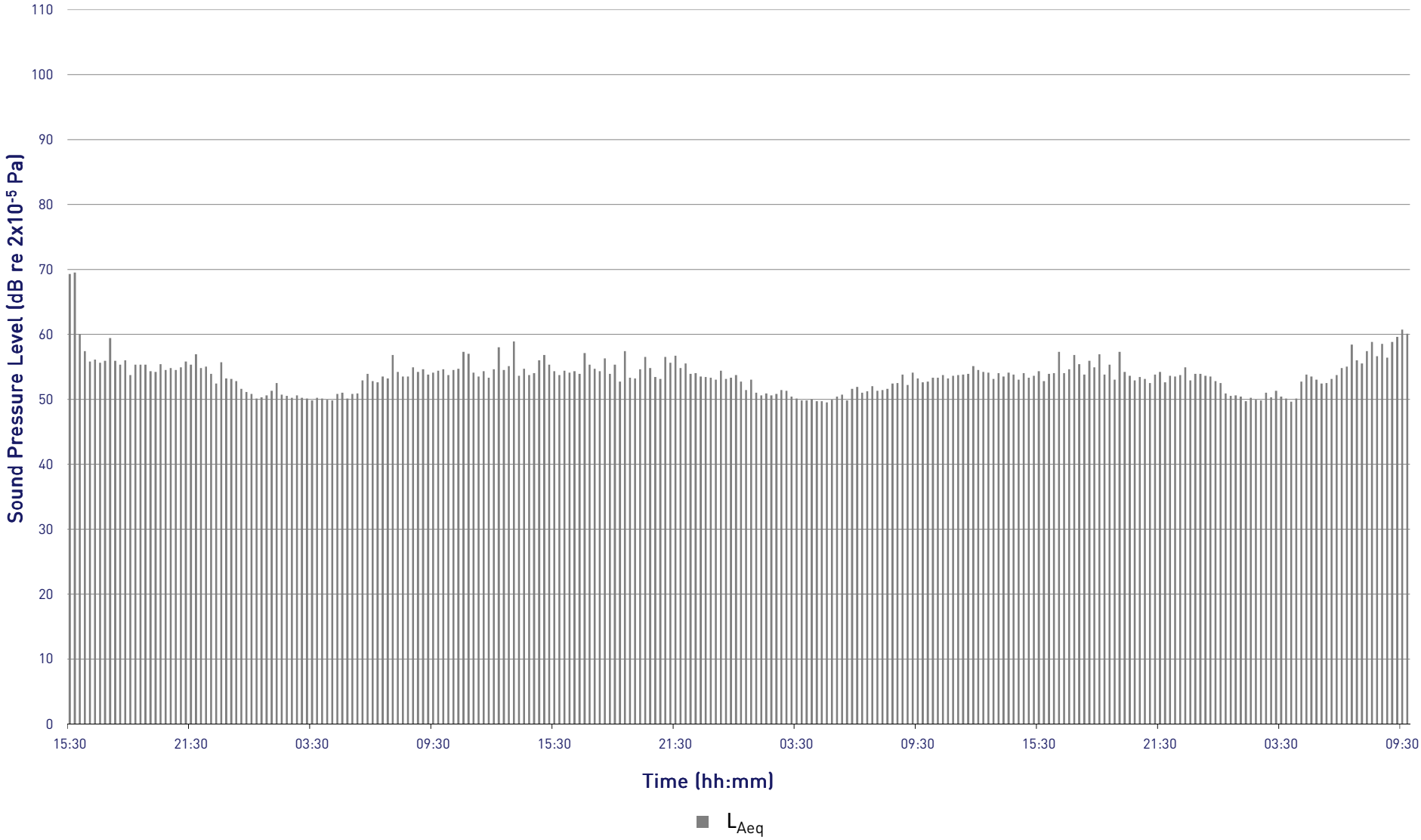
Somers Town, Energy Centre (Phase 2)

L_{Aeq} Time History

Measurement Position 1, Friday 23 February to Monday 26 February 2018

RBA ACOUSTICS

Graph 8474/G1



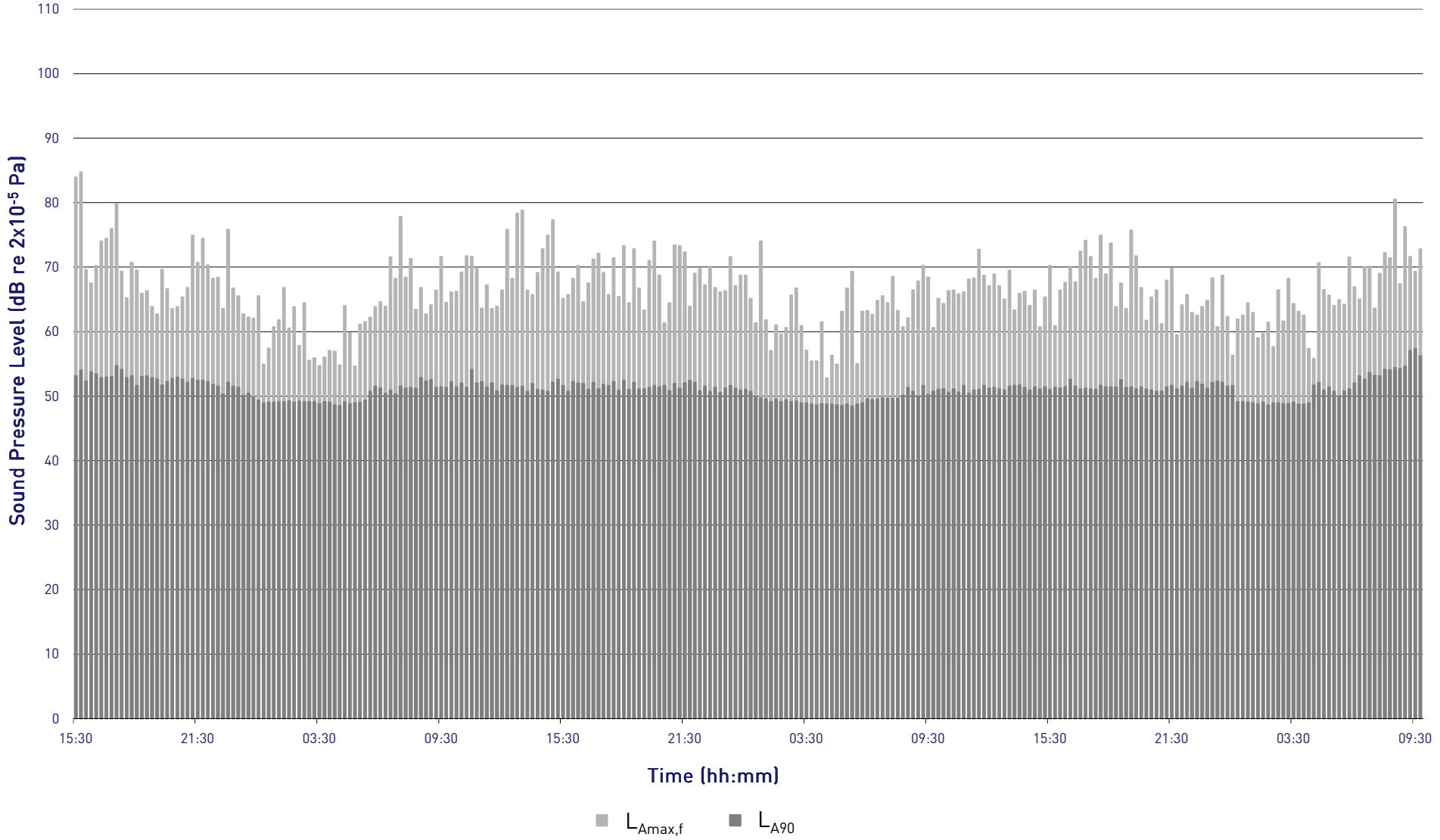
Somers Town, Energy Centre (Phase 2)

$L_{Amax,f}$ and L_{A90} Time History

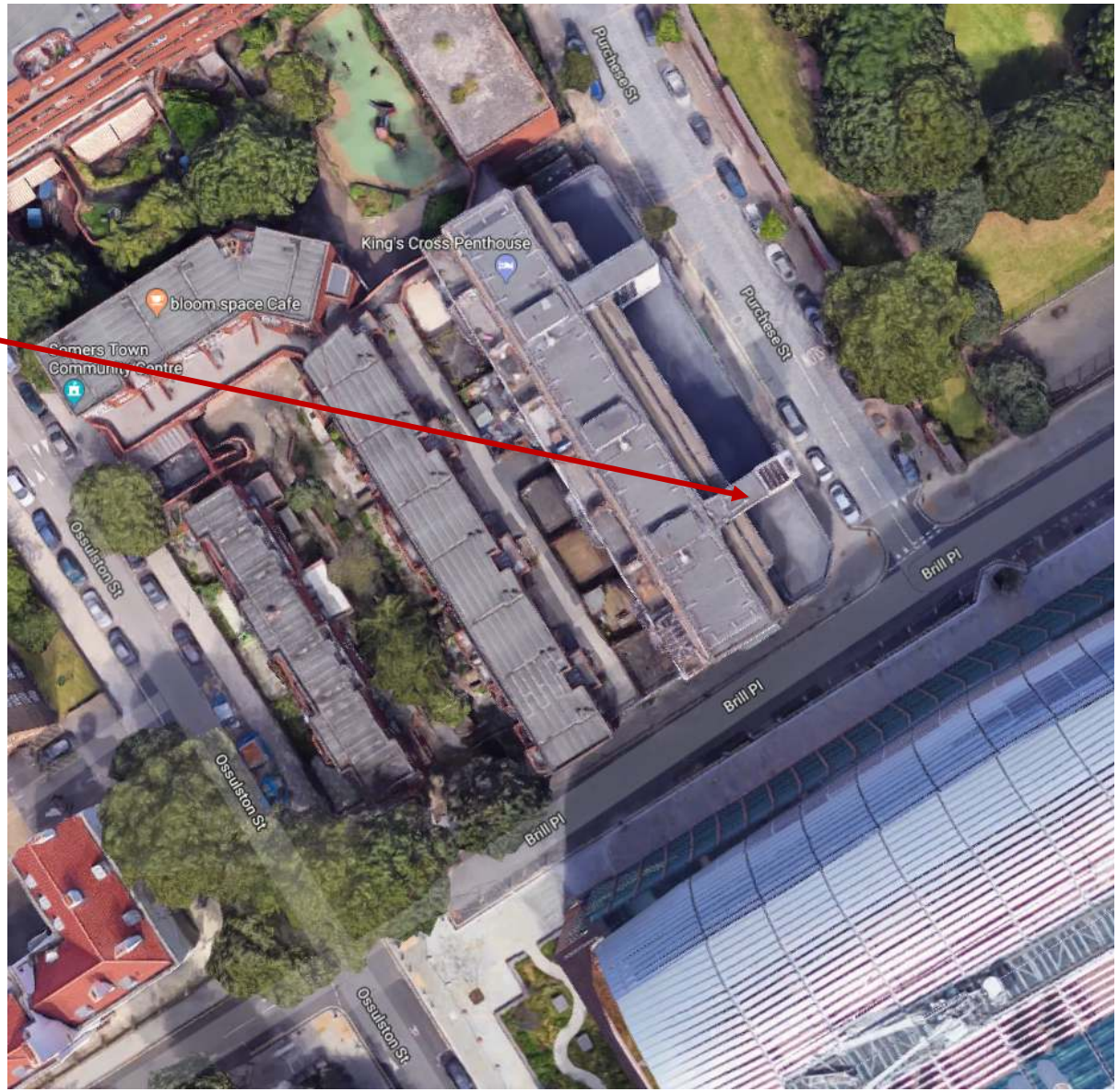
Measurement Position 1, Friday 23 February to Monday 26 February 2018

RBA ACOUSTICS

Graph 8474/G2



Measurement Position 1
(Roof Level)



Somers Town Energy Centre
Site Plan Showing Measurement Positions
Project 8474

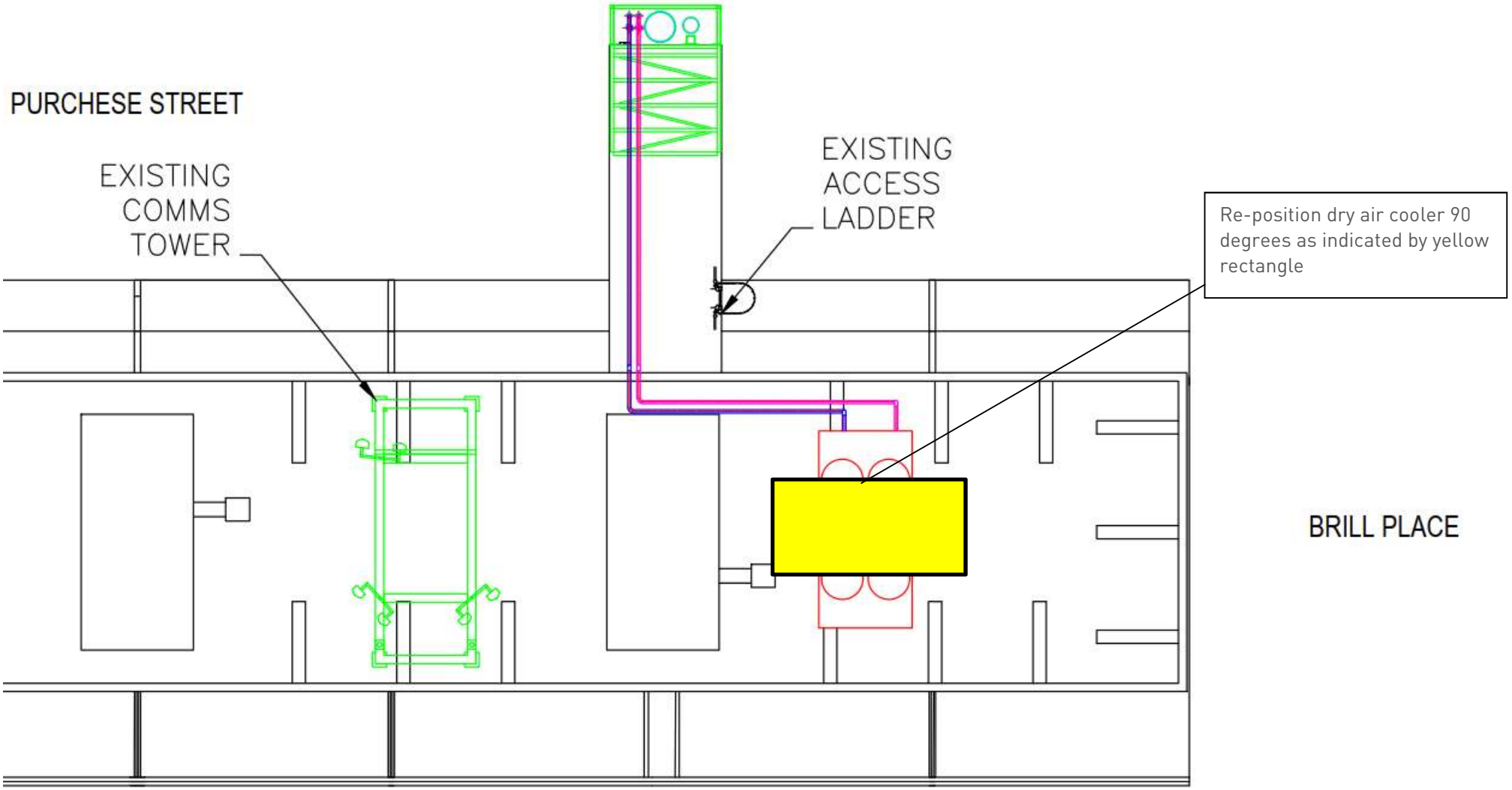
Site Plan 8474/SP1
11 May 2018

RBA ACOUSTICS

Somers Town Energy Centre
Measurement Position
Project 8474

Photograph 8474/P1
11 May 2018

RBA ACOUSTICS



Somers Town Energy Centre
Site Plan Showing Dry Air Cooler Positioning
Project 8474

Site Plan 8474/SP2
11 May 2018

RBA ACOUSTICS