



Note

Title	ES Noise Clarifications		
Project	Luton Airport 19mmpa ES		
Reference	271E.NT4.1	Author(s)	VC
Date	23 November 2021	Reviewer	BH

Introduction

1.1 This note describes a variation to proposed revised Condition 10. The variation is considered appropriate since the current proposed revised condition relies on forecast contour areas for 2021 which have not materialised. The actual summer period 2021 noise contours are now available in BAP Report A11060 N63 DR 1.0 2021 Summer Contours.

ES Proposed Variation

1.2 The proposed Condition 10 set out in the Revised ES includes:

The area enclosed by the 57dB(A) Leq16hr (0700-2300) contour shall not exceed 21.6 sq km for daytime noise, and the area enclosed by the 48dB(A) Leq8hr (2300-0700) contour shall not exceed 42.9 sq km for night-time noise, when calculated by the Federal Aviation Integrated Noise Model version 7.0-d (or as may be updated and amended) for the period up to the end of 2027.

1.3 These limits were based on forecasts of aircraft operations in the summer period for 2021 that did not materialise, principally due to the COVID induced industry wide turn down in operations. In contrast the actual areas of the noise contours were, according to BAP Report A11060 N63 DR 1.0 2021 Summer Contours:

- Daytime 57dB(A) Leq16hr (0700-2300) = 10.9 sq km
- Night-time 48dB(A) Leq8hr (2300-0700) = 23.9 sq km

1.4 As things stand, therefore, the Revised ES is not able to justify the extent of the short-term daytime and night-time noise contour limits currently requested.

Revised Variation

1.5 Based on information set out in the revised ES, it would be more appropriate to assume that while 2021 noise contours were not as extensive as forecast, based upon all available information including recently published 2021 actual contours, the 2022 contours will closely match those forecast as worst case for the 19mmpa scenario. In this case it is advised that the revised Condition 10 wording should be amended to read as follows:

*The area enclosed by the 57dB(A) Leq16hr (0700-2300) contour shall not exceed **21.1** sq km for daytime noise, and the area enclosed by the 48dB(A) Leq8hr (2300-0700) contour shall not exceed **42.1** sq km for night-time noise, when calculated by the Federal Aviation Integrated Noise Model version 7.0-d (or as may be updated and amended) for the period up to the end of 2027.*



LONDON LUTON AIRPORT

A11060-N63-DR_1.0

26 October 2021

ACTUAL 2021 SUMMER NOISE CONTOURS

1.0 INTRODUCTION

When planning permission was given in 2014 for development at Luton Airport (Application No: 12/01400/FUL) a number of conditions were imposed. Condition 12 required that daytime and night-time contours are produced on an annual basis, for the previous summer period based on actual ATM data, and for the following summer period based on predicted ATM data. The areas of these contours are to be compared to the limits contained in Condition 12.

London Luton Airport Operations Limited (LLAOL) have retained Bickerdike Allen Partners LLP (BAP) to produce airborne aircraft noise contours for the 92 day summer period based on the actual movements for 2021.

The contours for 2021 provide part of the information that would be required to comply with Condition 12. Also required are forecast contours for 2022, and information on the current QC Annual Budget for 2021 which will be determined once the year is complete.

2.0 CONTOUR PRODUCTION

Aircraft movement data for use in the contour production has been supplied by LLAOL. Twelve night-time flights associated with the Euro 2020 football tournament were subject to a dispensation and have therefore not been included in the summer contours. The 2021 contour production methodology has been updated from that used for the 2020 contours. It retains the inclusion of terrain, and the use of the INM software (Version 7.0d), but the validation has been updated. The validation is now based on measured results in 2020 at the fixed noise monitors. This update to the contour prediction methodology is described in the BAP note A11060-N62-DR, dated 12th August 2021. The effect of the update, when tested on the 2021 Q1 night contours, was a small increase in contour area of between 2% and 4%.

The 2021 contours are based on the actual runway usage in 2021, which is shown in Table 1 below. The 2020 contours which are included for comparison are based on the actual runway usage in 2020.

Year	% of Summer Movements	
	Runway 07	Runway 25
2020 Actual	22%	78%
2021 Actual	49%	51%

Table 1: 2020, 2021 Summer Modal Split

3.0 NOISE CONTOUR RESULTS

The noise contours for 2021 are shown in the attached Figures A11060-N63-01 and A11060-N63-02. They are presented at values from 57 to 72 dB $L_{Aeq,16h}$ (daytime) and 48 to 69 dB $L_{Aeq,8h}$ (night-time). The area of each contour is given in Table 2 (daytime) and Table 3 (night-time), and compared with the corresponding 2020 contour.

Contour Value (dB $L_{Aeq,16h}$)	Contour Area (km ²)	
	2020	2021
57	12.2	10.9
60	7.3	6.3
63	4.0	3.3
66	2.0	1.7
69	1.2	1.1
72	0.7	0.7

Table 2: Area of Daytime Summer Noise Contours, 2020 and 2021

Contour Value (dB $L_{Aeq,8h}$)	Contour Area (km ²)	
	2020	2021
48	28.8	23.9
51	16.3	13.7
54	9.3	8.1
57	5.4	4.4
60	2.7	2.2
63	1.5	1.3
66	0.9	0.8
69	0.6	0.5

Table 3: Area of Night-Time Summer Noise Contours, 2020 and 2021

The 57 dB $L_{Aeq,16h}$ (daytime) noise contours for 2020 and 2021 are compared in Figure A11060-N63-03. The 48 dB $L_{Aeq,8h}$ (night-time) noise contours for 2020 and 2021 are compared in Figure A11060-N63-04.

The 2021 57 dB daytime contour is around 11% smaller than the equivalent 2020 contour. The number of daytime movements in 2021 remained similar to 2020, however the number of movements by passenger turbofan aircraft types has reduced by around 7%, which have been replaced with movements by quieter turboprop and business aviation aircraft. There was also an increase in the proportion of flights by the quieter modernised aircraft types.

The 2021 48 dB night-time contour is around 17% smaller than the equivalent 2020 contour. The number of night-time movements in 2021 was around 21% lower than in 2020. The overall fleet mix remained similar, subject to an increase in the proportion of flights by the quieter modernised aircraft types.

Around 19% of all movements in 2021 were by quieter modernised aircraft compared to around 12% in 2020. There was a particularly large increase in the proportion of movements by the Airbus A321neo.

The daytime and night-time contours for 2021 are a different shape than the 2020 contours, largely due to a change in the runway modal split. 49% of movements conducted easterly operations (used Runway 07) in summer 2021 compared to 22% in summer 2020. Compared to the 2020 contours, the 2021 57 dB daytime and 48 dB night-time contours are longer in relation to Caddington, but are narrower to the west of the airport, and much smaller to the south-west. The 2021 57 dB daytime contour is wider to the east and a similar length compared to 2020. The 2021 48 dB night-time contour is also wider to the east, but shorter than the equivalent 2020 contour.

4.0 DWELLING AND POPULATION COUNTS

An assessment has been carried out of the number of dwellings and the population within the noise contours produced for 2021. This has utilised a postcode database supplied by CACI Ltd, specifically the 2021 iteration of the database. Each postcode in the database is described by a single geographical point, and if this point is within a given contour then all of the dwellings and population in the postcode are counted as within the contour.

The dwelling and population counts are given for the 2020 and 2021 daytime and night-time contours in Table 4 and Table 5 respectively. The values in these tables have been rounded to the nearest 50, except where less than 50 when the actual value is given. The 2020 counts given here have been updated to utilise the latest postcode database, and so may differ from those previously reported.

Contour Value (dB L _{Aeq,16h})	2020		2021	
	Dwellings	Population	Dwellings	Population
57	2,550	6,200	1,250	3,300
60	750	2,000	450	1,150
63	100	350	8	20
66	0	0	0	0
69	0	0	0	0
72	0	0	0	0

Table 4: Dwelling and Population Counts for Daytime Summer Noise Contours, 2020-2021

Contour Value (dB L _{Aeq,8h})	2020		2021	
	Dwellings	Population	Dwellings	Population
48	6,450	14,800	4,550	10,400
51	3,750	8,700	2,000	5,100
54	1,550	3,950	750	2,050
57	400	1,100	150	400
60	7	16	3	6
63	0	0	0	0
66	0	0	0	0
69	0	0	0	0

Table 5: Dwelling and Population Counts for Night-Time Summer Noise Contours, 2020-2021

5.0 SUMMARY

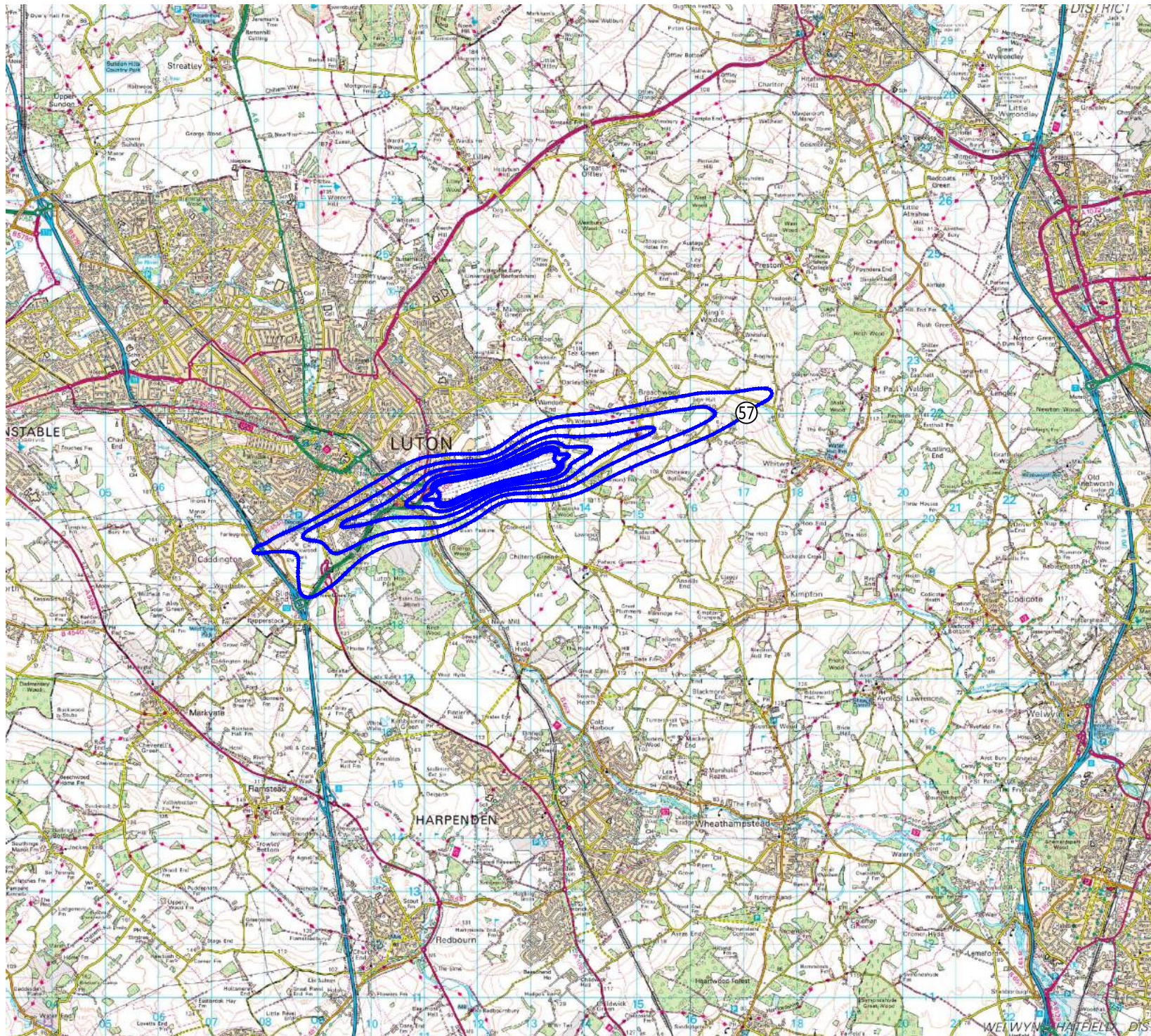
As can be seen in Table 2 and Table 3, the contours for 2021 are smaller than those for 2020. This is due to a reduction in the proportion of daytime movements by passenger turbofan aircraft types and a reduction in overall night-time movements, as well as an increase in the proportion of movements by quieter modernised aircraft types.

There has been a change in the shape of the 2021 noise contours compared to 2020, due to a higher proportion of movements conducting easterly operations (using Runway 07).

Dwelling and population counts for the daytime and night-time contours for both 2020 and 2021 have been determined based on a 2021 postcode database.

Duncan Rogers
for Bickerdike Allen Partners

David Charles
Partner



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LEGEND:

Noise Contours,

— 57 to 72 dB Laeq,16h in 3 dB steps

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London Luton Airport
Regular Contouring

Airborne Aircraft Noise Contours
2021 Summer Actual Daytime

DRAWN: DR

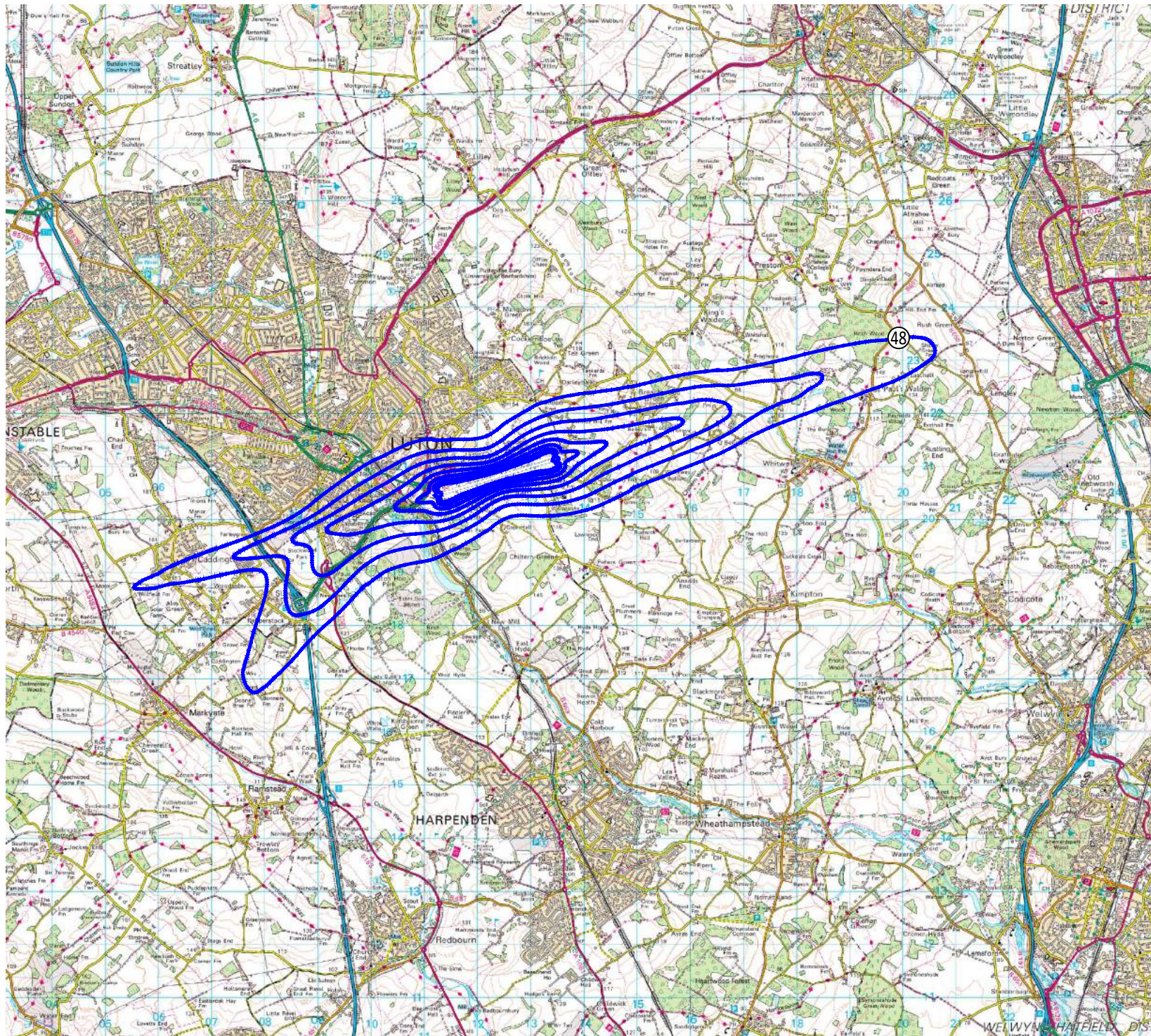
CHECKED: DC

DATE: October 2021

SCALE: 1:100000@A4

FIGURE No:

A11060-N63-01_1.0



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LEGEND:

Noise Contours,

— 48 to 69 dB Laeq,8h in 3 dB steps

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London Luton Airport
Regular Contouring

Airborne Aircraft Noise Contours
2021 Summer Actual Night-time

DRAWN: DR

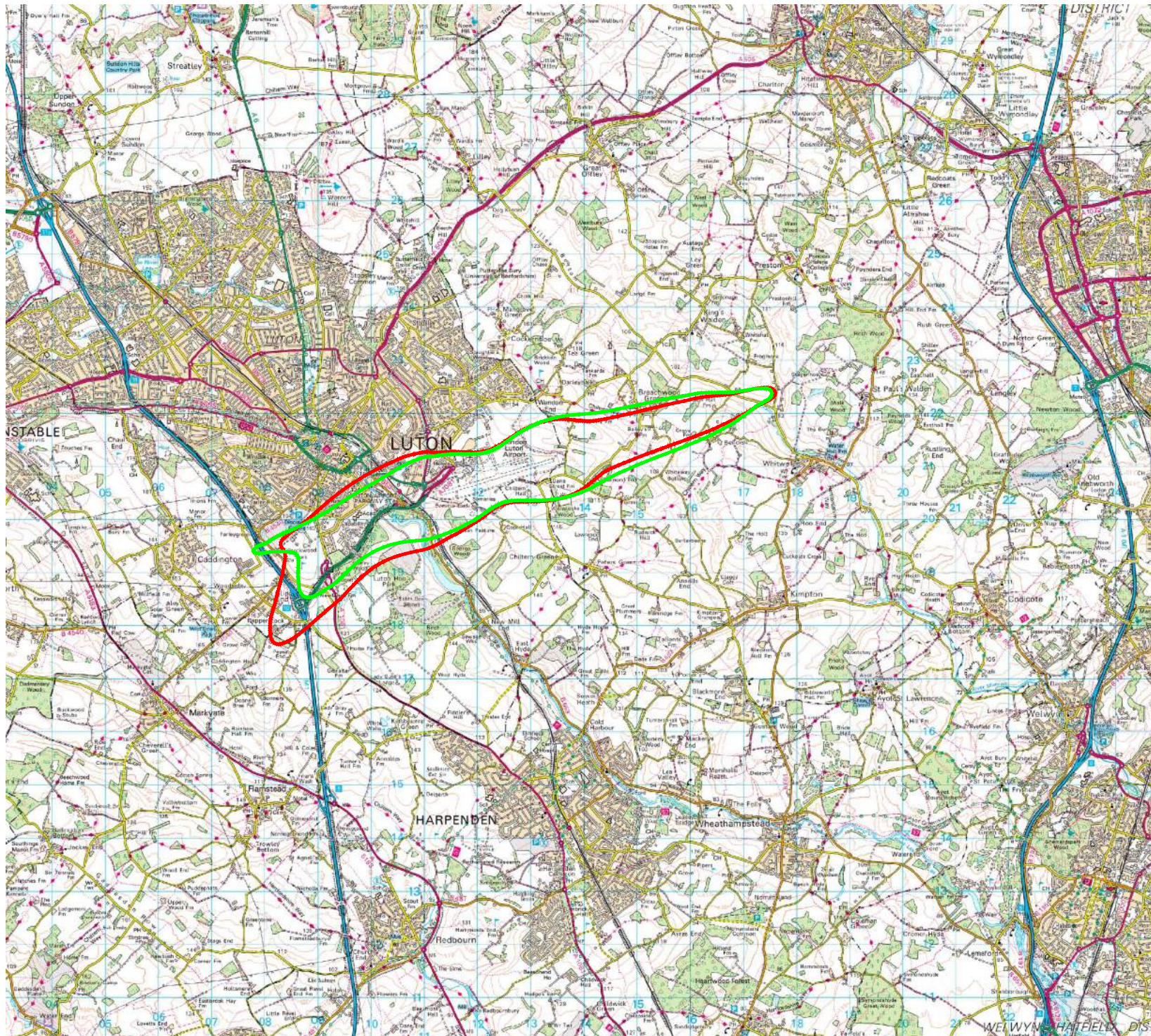
CHECKED: DC

DATE: October 2021

SCALE: 1:100000@A4

FIGURE No:

A11060-N63-02_1.0



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LEGEND:

57 dB LAeq,16h Noise Contours

— 2020 Actual

— 2021 Actual

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**London Luton Airport
Regular Contouring**

**Airborne Aircraft Noise Contours
Summer Daytime Comparison
2020 and 2021**

DRAWN: DR

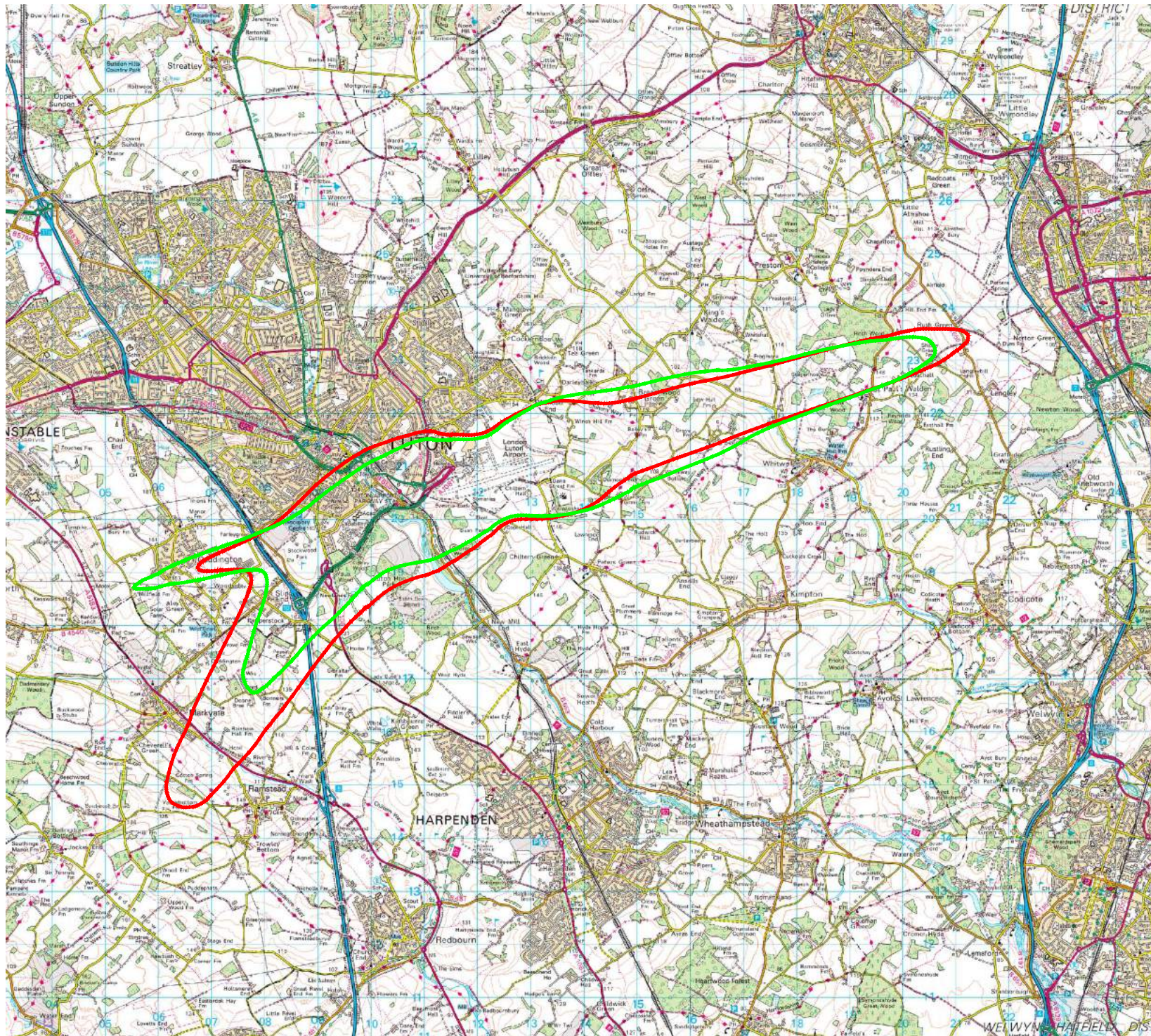
CHECKED: DC

DATE: October 2021

SCALE: 1:100000@A4

FIGURE No:

A11060-N63-03_1.0



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LEGEND:

48 dB Laeq,8h Noise Contours

— 2020 Actual

— 2021 Actual

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**London Luton Airport
Regular Contouring**

**Airborne Aircraft Noise Contours
Summer Night-time Comparison
2020 and 2021**

DRAWN: DR

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DATE: October 2021

SCALE: 1:100000@A4

FIGURE No:

A11060-N63-04_1.0