LAMP PIR Requirement B-Env1

London City RNAV Procedures LAeq16hrs contour impact assessment

Post-implementation of LAMP Phase 1A

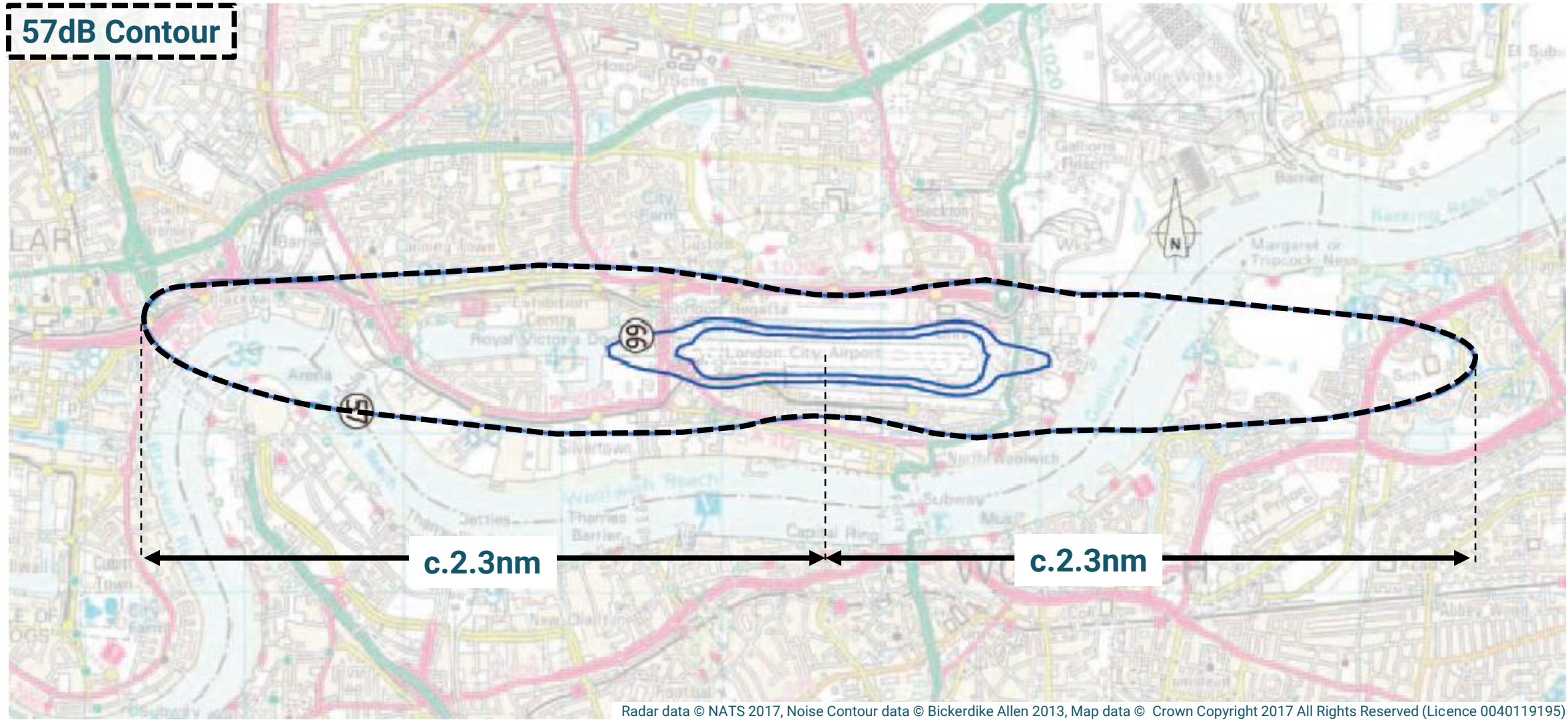Prepared by NATS Airspace Change Assurance (CPW)

For publication

NATS

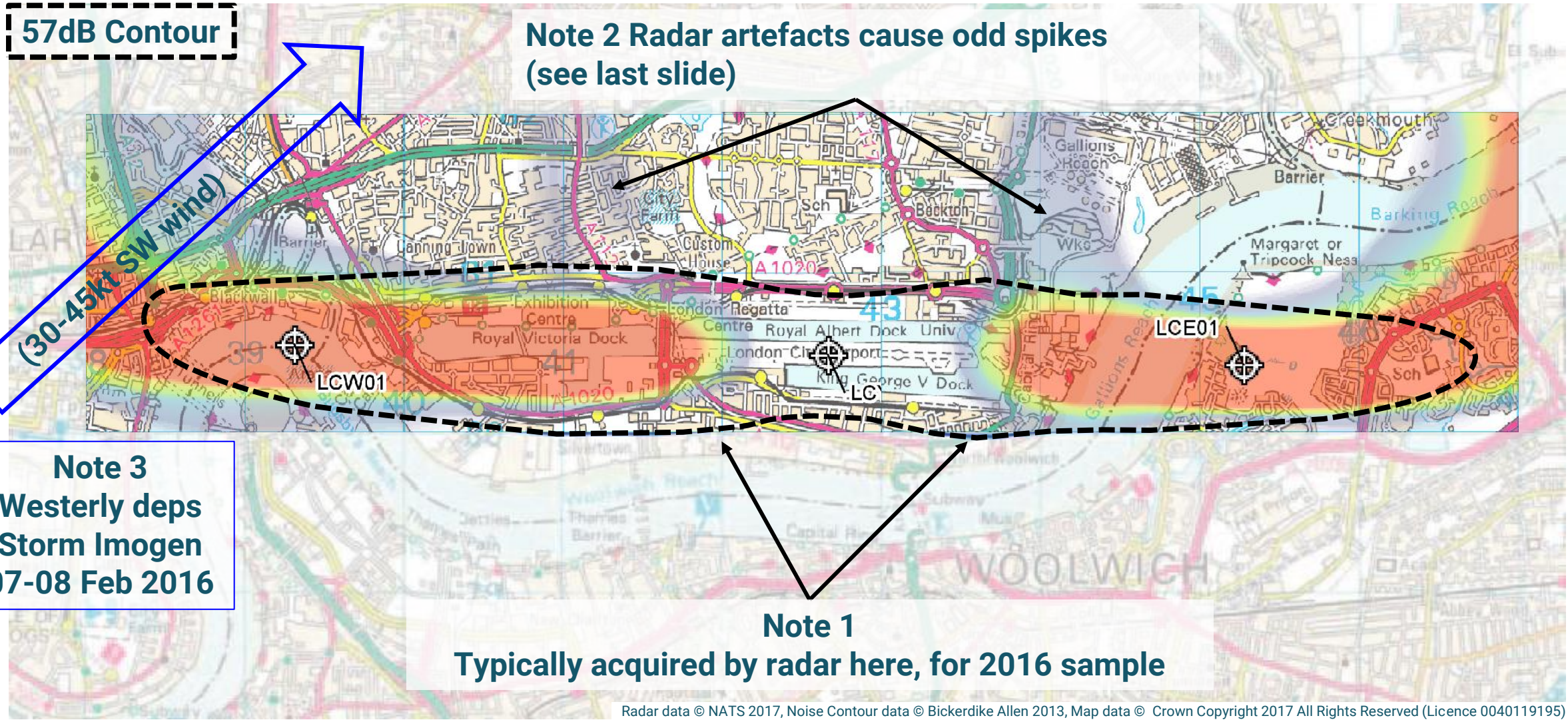# LAMP PIR requirements B-Env1: Leq assessment

Item B-Env1	requires evidence or rational that no changes to Leq occurred as a result of the implementation of these procedures.
Evidence	is supplied for departures (RNAV1 SIDs) only, comparing post-implementation traffic density pattern with the 2013 year 57dB LAeq16hr contours (supplied by Bickerdike Allen). This radar track density data uses a previous version of the density colouring (red for most concentrated instead of the newer purple). The colour difference is immaterial here.
Argument	The 57dB LAeq16hrs contours end c.2.3nm from the runway. The arrival transitions end c.6nm from the runway, when the flights establish on the ILS. Therefore Leq contours *would not* be impacted by the implementation of arrival transitions.
Note 1	Radar data for the post-implementation period is acquired lower than for the 2013 sample, which shows a slight "gap". This means that the post-implementation density patterns start closer to the end of the runways, falsely implying that there were no overflights in the 2013 "gap". In 2013 aircraft departing from the runway traversed the "gap" but were simply not acquired by radar until slightly later. The pre-implementation traffic density close to the runway ends would be comparable to that post-implementation.
Note 2	This post-implementation earlier-acquisition of radar data occasionally provides odd "spikes" where the return registers in the wrong place for one or two returns, straight off the runway. These spikes are more clearly shown in the whisker plot data provided in item B14 (see example on last slide). These are likely to be reflected returns from tall buildings.
Note 3	The post-implementation picture for February 2016 included the dates 7-8 Feb, Storm Imogen, 30-45kt SW winds. This exceptional gusting would be expected to affect aircraft turns. Even so, the main concentration was unchanged.

LAMP PIR requirements B-Env1
# Impact on LAeq16hr contours from 2013

57dB Contour

c.2.3nm c.2.3nm

2013-06-E, W extracts – Pre-implementation

57dB Contour

Note 1
Typically acquired by radar here, for 2013 sample

2016-02-E, W extracts − Post-implementation

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57dB Contour

Note 2 Radar artefacts cause odd spikes (see last slide)

(30-45kt SW wind)

LCW01

LCE01

LC

Note 3 Westerly deps Storm Imogen 07-08 Feb 2016

Note 1 Typically acquired by radar here, for 2016 sample

2016-05-E, W extracts – Post-implementation

57dB Contour

Note 2 Radar artefacts cause odd spikes (see last slide)
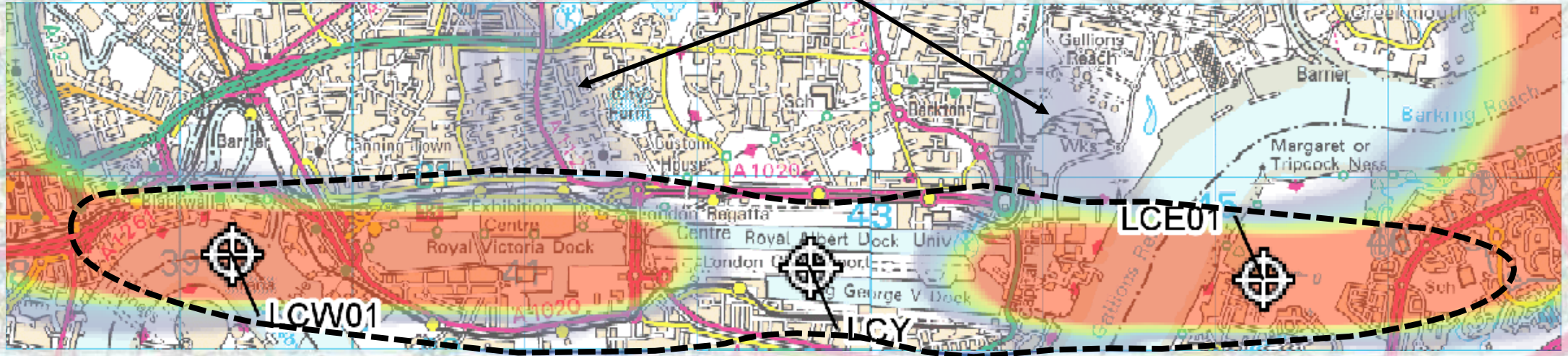
LCE01

LCW01
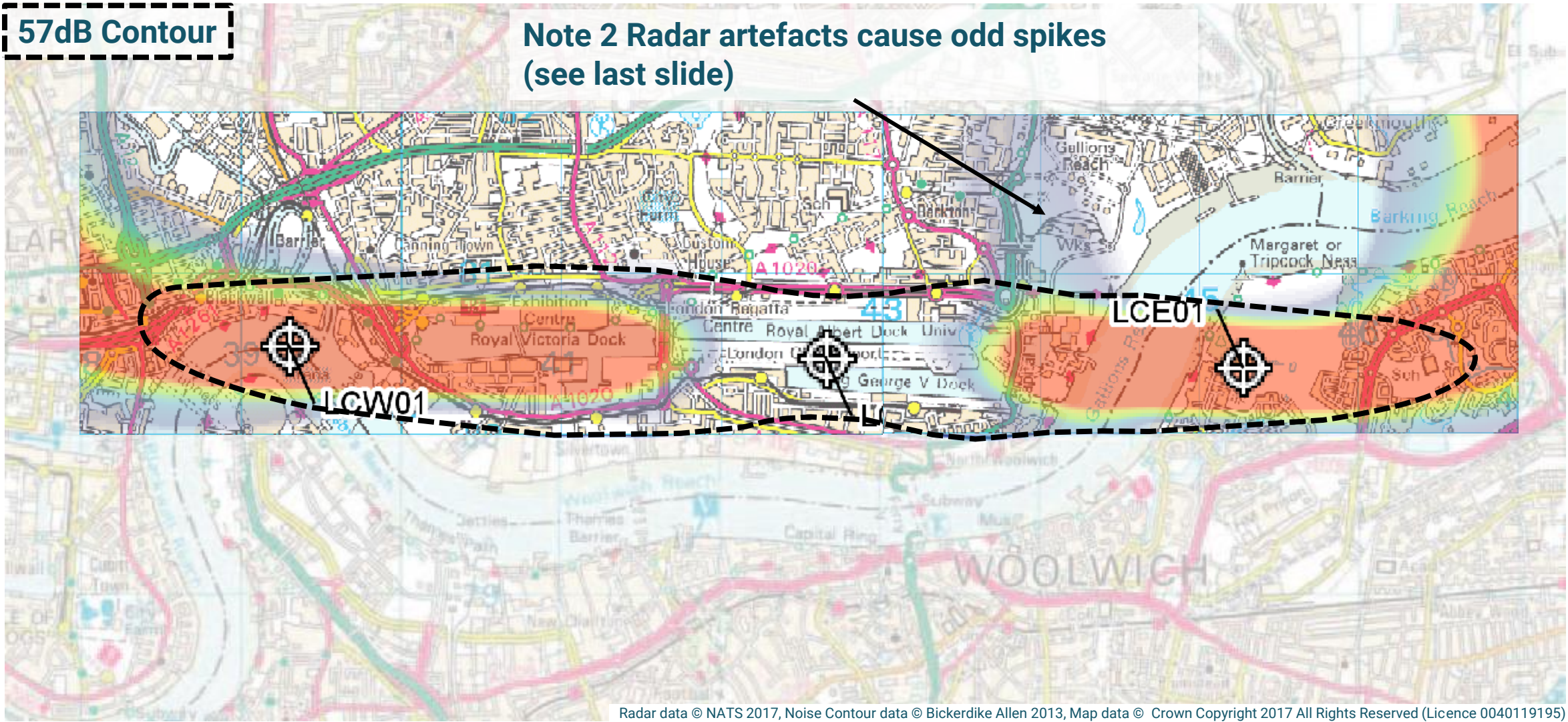
2016-08-E, W extracts – Post-implementation

57dB Contour

Note 2 Radar artefacts cause odd spikes (see last slide)

LCE01

LCW01

LCY
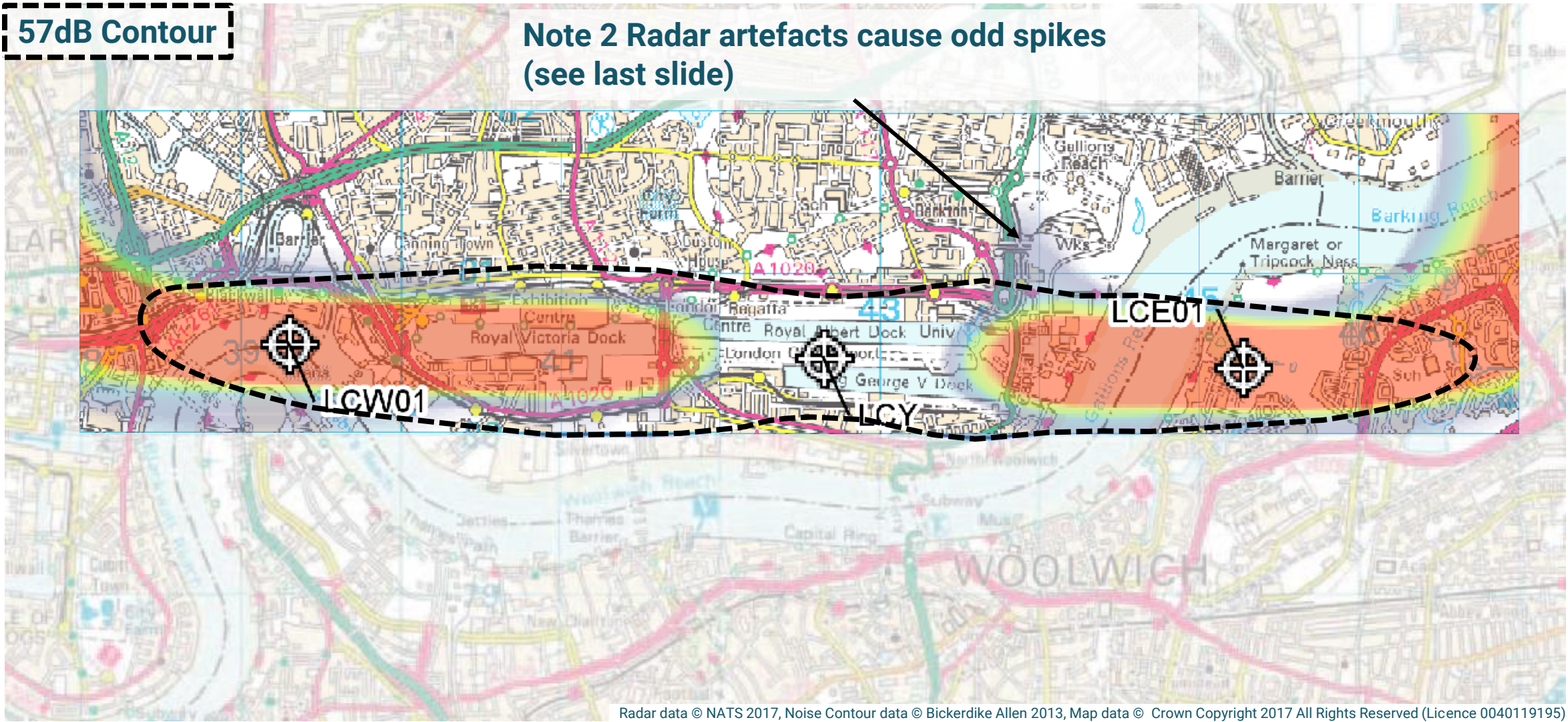
2016-11-E, W extracts – Post-implementation

57dB Contour

Note 2 Radar artefacts cause odd spikes (see last slide)

LCE01

LCW01

LCY

Radar data © NATS 2017, Noise Contour data © Bickerdike Allen 2013, Map data © Crown Copyright 2017 All Rights Reserved (Licence 0040119195)

Conclusion – B-Env1

Departures

There is no evidence that RNAV1 SIDs change departure traffic behaviour within 2.3nm of the runway.
The trajectory density plots show that flightplath concentrations are greatest directly in line with the departure runway, pre- and post-implementation, for the first c.2.3nm of the first leg of the departures.

Arrivals

There is no evidence that RNAV1 arrival transitions change traffic behaviour within 2.3nm of the runway.

Conclusion

Traffic behaviour within the contour is not noticeably different pre- and post-implementation.
The introduction of the RNAV1 procedures is not likely to cause significant or noticeable changes to the 57dB LAeq16hrs contour.
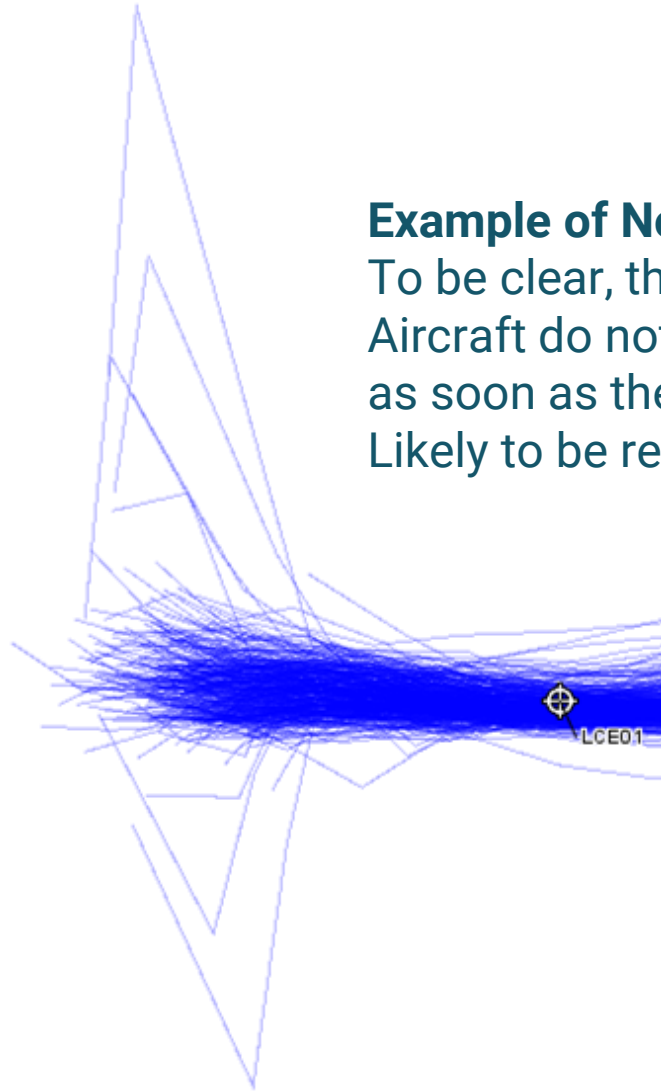
Note 2 – Radar Artefacts

Example of Note 2 radar artefact spikes (Feb 2016)
To be clear, this is a radar anomaly.
Aircraft do not violently zigzag 1nm left then 2nm right as soon as they are airborne.
Likely to be reflected radar returns from tall buildings.

End