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Technical Note - Air Quality

Bartley Power, Plas Bennion Road, Ruabon

Presented to Bartley Power Limited

Issued: March 2024

Delta-Simons Project Number: 87658. 616036

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
1	Final	4th March 2024	-			D Boote
				Jethro Redmore Air Quality Consultant	Jethro Redmore Air Quality Consultant	Dan Boote Principal Consultant

1.0 Context and Purpose

Delta-Simons Limited ('Delta-Simons'), was instructed by Bartley Power Limited (the 'Client') to undertake an Air Quality Assessment to inform a Medium Combustion Plant (MCP) permit application for the existing plants, located at Bartley Power, Plas Bennion Road in Ruabon, Wrexham, LL14 1TP (the 'Site').

Following submission of the Environmental Permit Application (reference: PAN-023536), a Notice requiring further information was received from Natural Resources Wales (NRW). Direct email correspondence was also received requesting contour plots of the relevant model outputs. The relevant requests are addressed in the following Technical Note.

2.0 Request 1

It is confirmed by the Operator that the MCPs were first commissioned and operational in December 2014. The information provided in the original application should therefore be disregarded.

3.0 Request 2

The relevant parameters used to calculate the exhaust gas parameters are summarised in Table 1. These are the same for all MCP on site.

Table 1 - Exhaust Gas Parameters

Parameter	Unit	Value
Flue gas temperature	°C	416
Flue gas moisture content	%	7.4
Flue gas oxygen (O_2) content	%	7.4
Flue gas volumetric flow rate	m^3/s	6.61
Flue gas volumetric flow rate at 273K, dry, 5% O_2	Nm^3/s	2.06
Flue gas velocity	m/s	23.4
Oxides of nitrogen (NO_x) concentration at 273K, dry, 5% O_2	mg/Nm^3	500
NO_x emission rate	g/s	1.03

It is confirmed that a NO_x concentration of 500mg/Nm^3 at 273K, dry, 5% O_2 was utilised in the emissions calculation. This is the same as 190mg/Nm^3 at 273K, dry, 15% O_2.

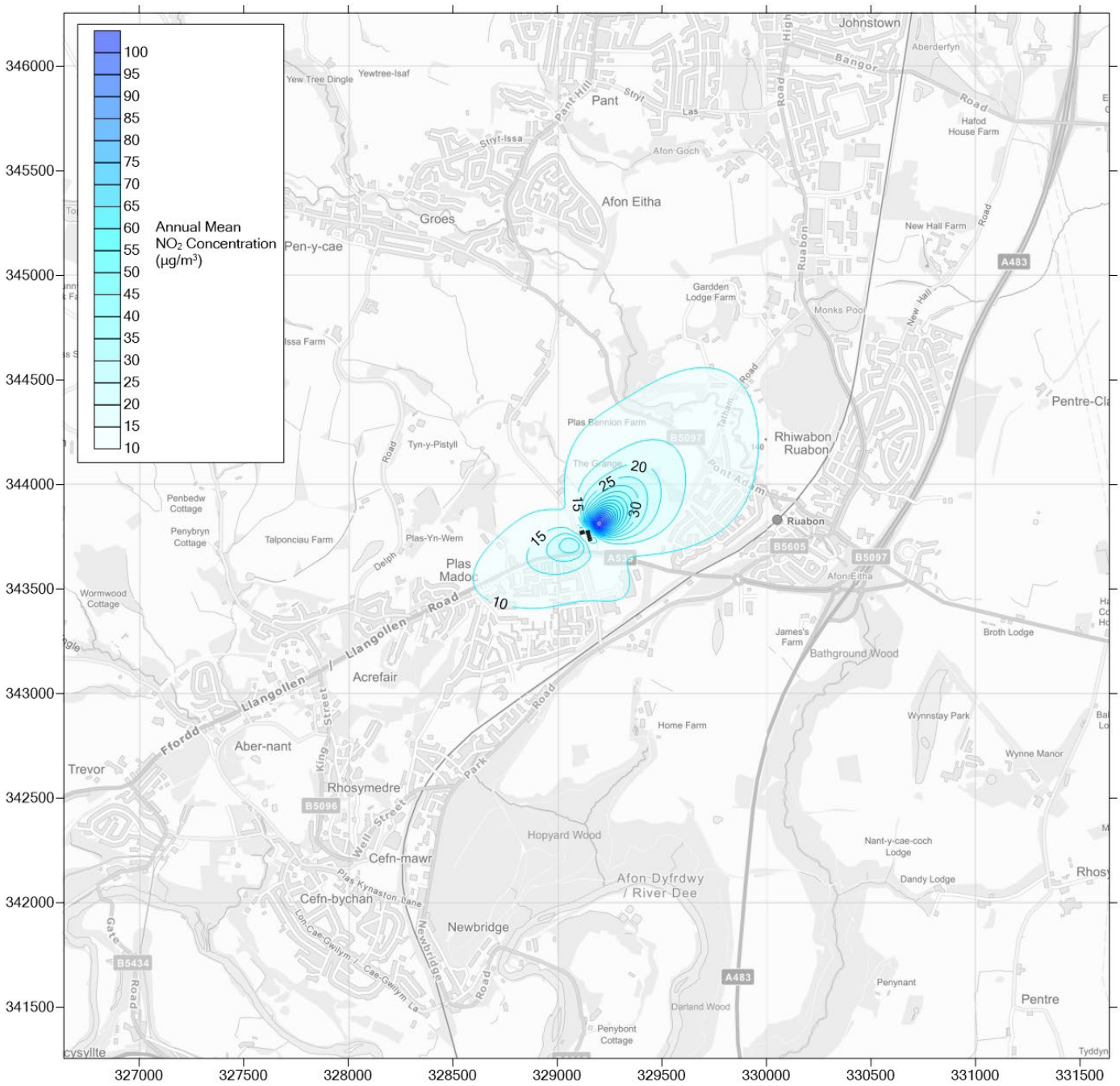
4.0 Request 3

The specified generators are Tranche A as they were operating before 1 December 2016 and a contract was in place to provide services to the national grid before 31 October 2017.

5.0 Request 4

Contour plots for the relevant pollutant outputs are provided overleaf. It should be noted that the model was rerun using ADMS-6 (version 6.0.0.1) to ensure the most up to date software package was utilised.

The data shown in the Figures are predictions from the meteorological data set which resulted in the maximum pollutant concentration for that species. For example, the maximum annual mean NO_2 concentration was predicted using the 2019 meteorological data set. As such, the contours shown in Figure 1 were produced from the 2019 model outputs.



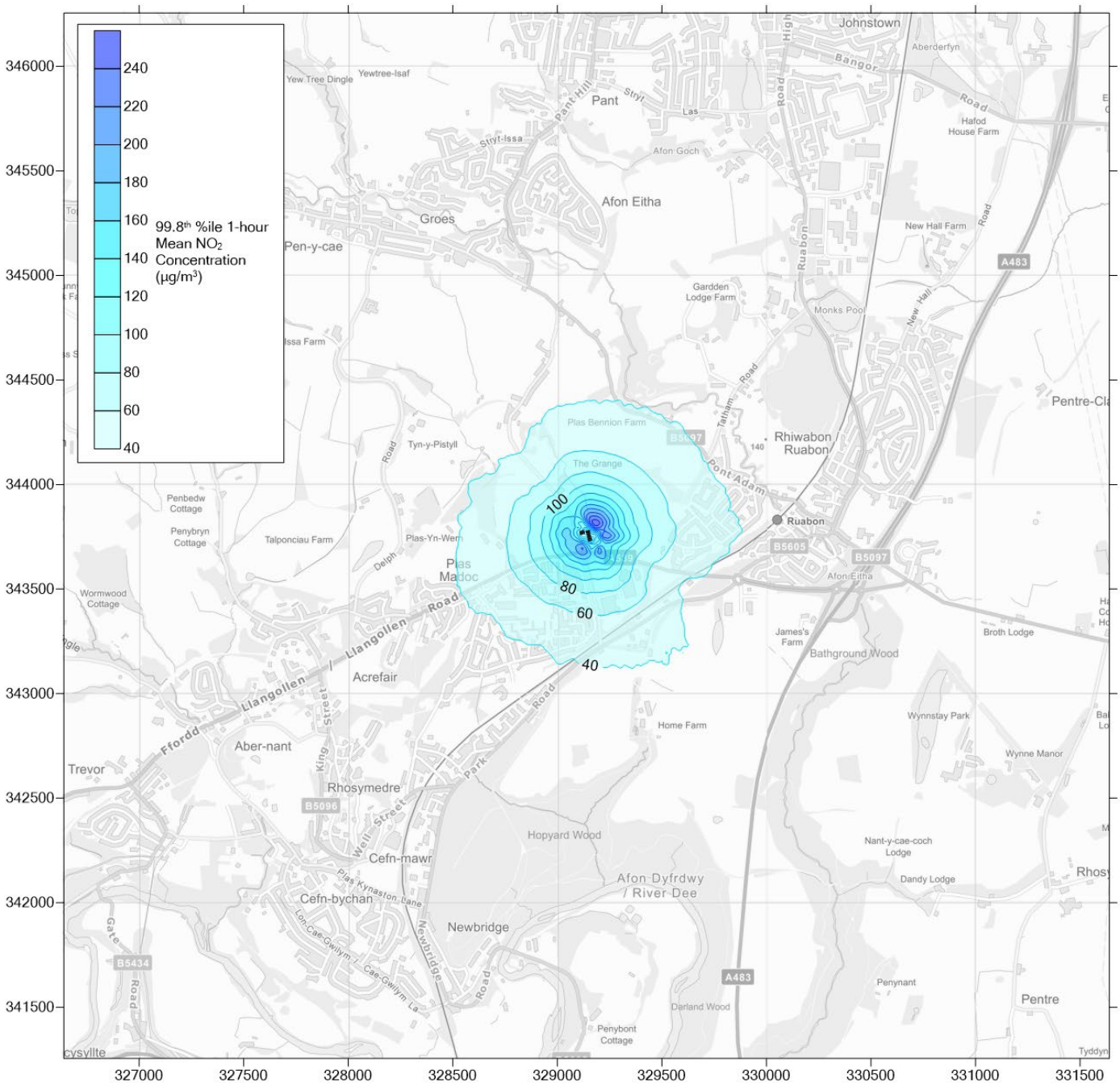
DeltaSimons

TITLE:

Predicted Annual Mean NO_2 Concentration ($\mu g/m^3$) 2019 Meteorological Data

DRAWN BY:	SCALE:
JR	NTS
CHECKED BY:	REVISION:
JR	-
DATE:	
4 March 2024	

FIGURE NO: 1



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TITLE:

Predicted 99.8th %ile 1-hour Mean NO_2 Concentration (µg/m^3) 2019 Meteorological Data

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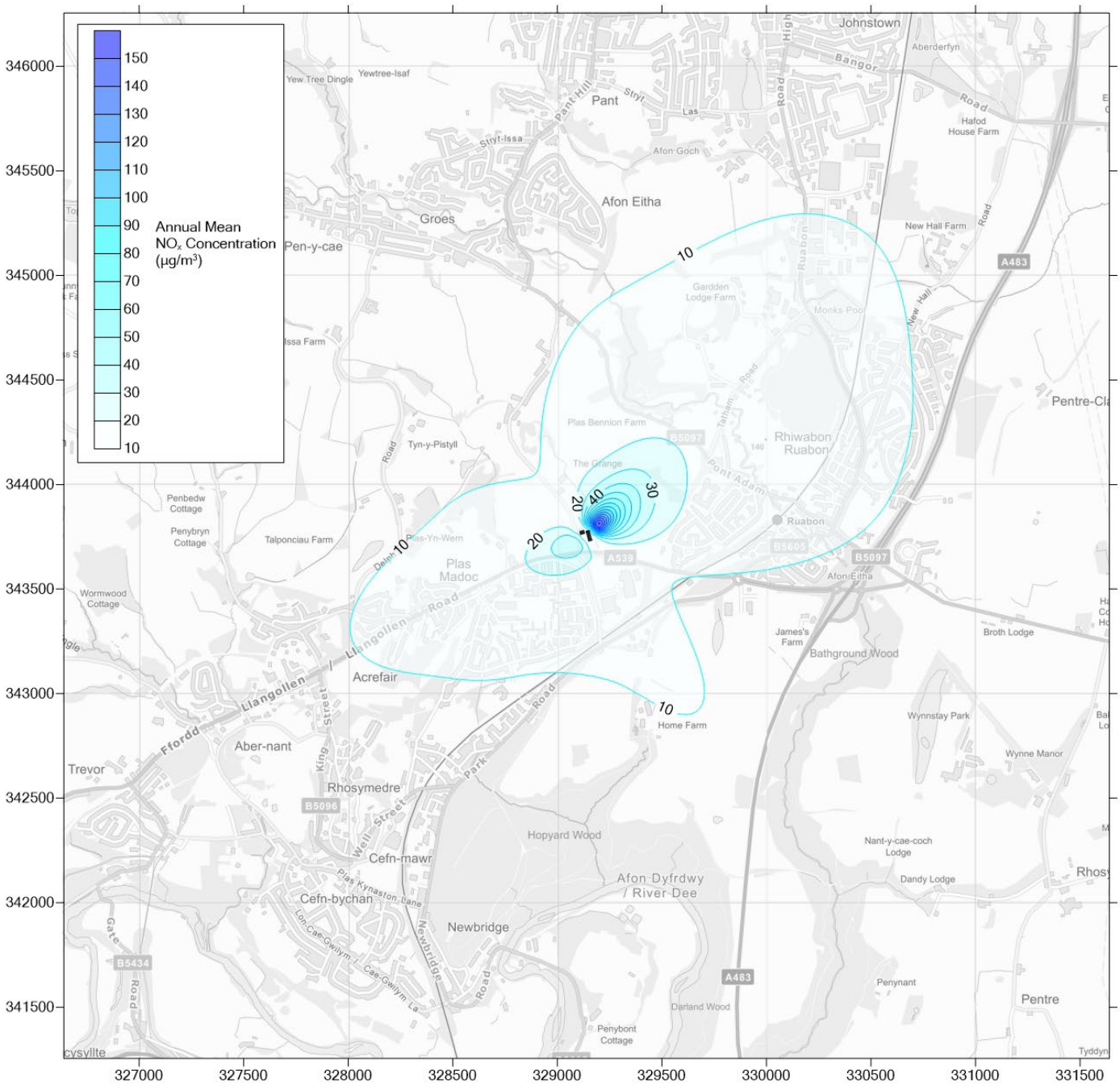
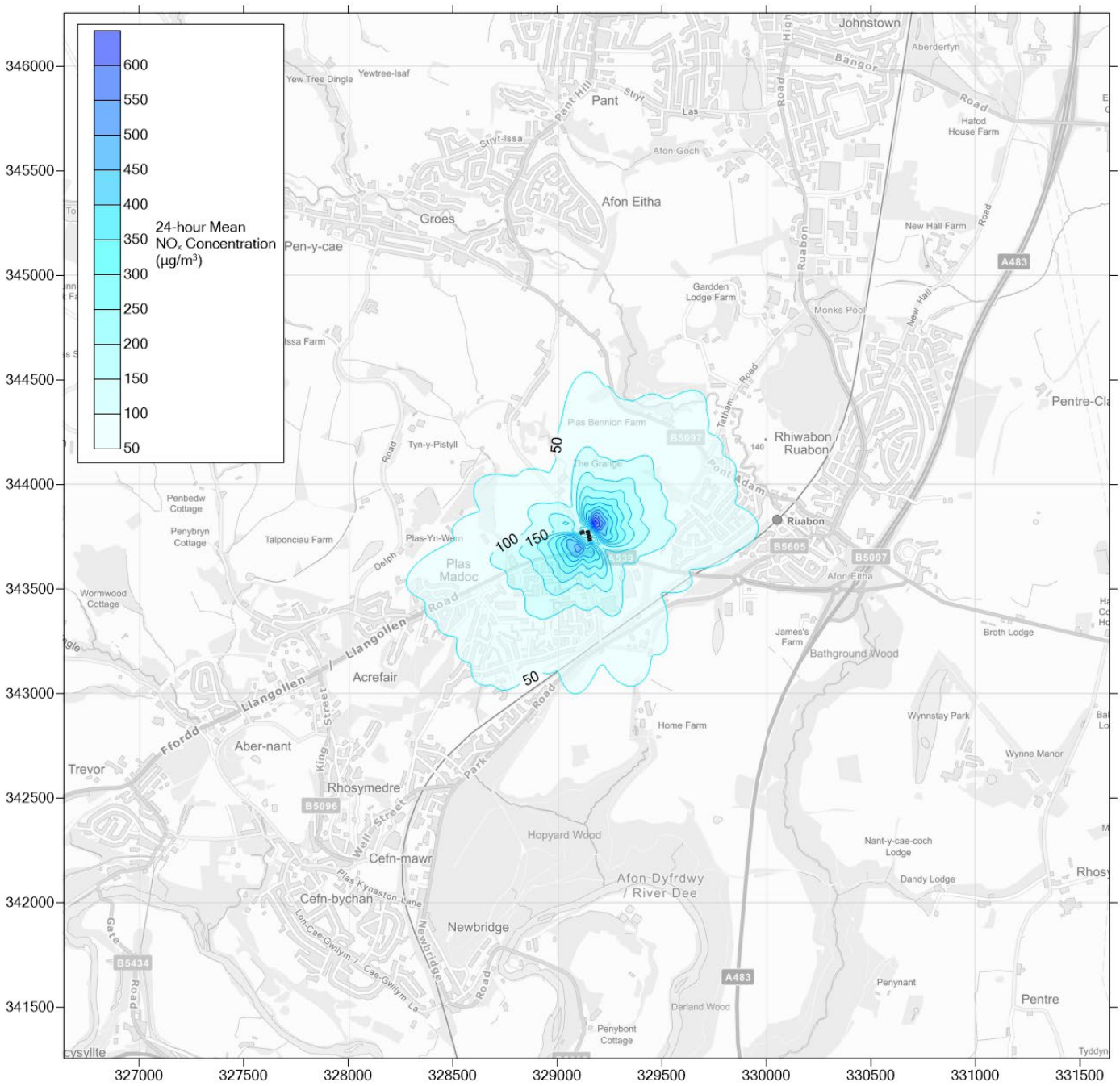
JR	NTS
CHECKED BY:	REVISION:
JR	-
DATE:	FIGURE NO:
4 March 2024	2



DeltaSimons	TITLE: Predicted Annual Mean NO_x Concentration (µg/m^3) 2019 Meteorological Data	DRAWN BY: JR / SCALE: NTS	
		CHECKED BY: JR / REVISION: -	FIGURE NO: 3
		DATE: 4 March 2024	



DeltaSimons	TITLE: Predicted 24-hour Mean NO_x Concentration (µg/m^3) 2020 Meteorological Data	DRAWN BY: JR / SCALE: NTS	
		CHECKED BY: JR / REVISION: -	FIGURE NO: 4
		DATE: 4 March 2024	