Planning Department
Slough Borough Council
Observatory House
25 Windsor Rd
Slough
SL1 2EL

12/10/2022
Your reference: P/00072/106(004)
Our reference: 65203376-007

Revised Emissions Parameters and Modelling Results

Dear Sirs,

Sweco UK has been commissioned by Yondr ('Client') to undertake a reappraisal of the impact of atmospheric emissions from the operation of emergency generators at the proposed development named SLO1 located off Wexham Road, Slough ('Site'). The proposals comprise two 30MWit data centre buildings with associated substation and mechanical yard. Each building (A & B) will include three storeys of data halls and facility support (offices and ancillary space), and a four-storey external gantry where most of the external plant will be located ('Proposed Development'). At this stage, it is also likely that a data centre use will come forward on 'Block J' area (i.e. the remaining commercial plot on the approved Parameter Plan).

An air quality impact assessment report (ref: 66202273-SWE-ZZ-XX-YA-RP-0003) was submitted in April 2021 for the discharge of planning condition 17 of the consent P/00072/096. A reassessment has been undertaken due to changes in design parameters such as generator emissions, exit height. Full details of these changes are provided in Table 1 of this this technical letter.

Results of the reassessment using detailed dispersion modelling are included within Tables 2 to 5 of this technical letter. All other results and conclusions of the original AQA remain unchanged.

Based on the remodelling appraisal concludes that the impact of atmospheric emissions from the operation of emergency generators at the proposed development are unchanged from the original full air quality impact assessment undertaken April 2021.

It is considered the operations of the proposed generators as per the below would not lead to significant impact on local air quality:

Testing Scenarios:

- Monthly testing for a duration of 15 minutes at no load – totalling to 3 hours/year; and,
- 6 monthly testing for a duration of 6 hours – totalling to 12 hours/year;

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Emergency Scenario:

- All 86 generators operating for a maximum duration of 92 hours/year.

Therefore, the information submitted for the discharge of condition 17 remains unchanged.

Best regards

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Attachments

Table 1 – Generator Emissions Data - as previously assessed vs as revised

Table 2 - Building Dimensions within the Site used in the Dispersion Model (Revised)

Table 3 - Revised NO_2 Annual Mean Concentration Changes and Associated Impact at Existing Sensitive Receptors in 2026 ('Worst-Case' Scenario)

Table 4 - Revised NO_2 Annual Mean Concentration at Proposed Residential Receptors to the South of the Proposed Development in 2026 ('Worst-Case' Scenario)

Table 5 – Revised Critical Level ('Worst-Case' Scenario)

Table 1 - Generator Emissions Data - as previously assessed vs as revised

Parameter (per engine)	Previously Assessed				New Parameters			
	Building A	Building B	Plot to north of RM boundary	Office Building	Building A	Building B	Plot to north of RM boundary	Office Building
Number of Units	26	26	34	2	26	26	34	**Removed from the design**
Generator Power, at 100% load (KWe)	2400	2200	2200	2200	2400	2400	2200	
Stack Height, above ground level (m)	25.5	25.5	17	10	21.95	21.95	17	
Temperature of Release (K)	757.7	750.8	750.8	750.8	789.15	789.15	750.8	
Emission Velocity at Stack Exit (m/s)	43.6	41.1	41.1	41.1	44	44	41.1	
Actual Flow Rate per combined stack (Am^3/s)	8.56	8.07	8.07	8.07	10.3	10.3	8.07	
Normalised Flow Rate per combined stack (Nm^3/s)*	0.92	0.87	0.87	0.87	1.11	1.11	0.87	
NO_x Emission Concentration (mg/Nm^3)*	3581.7	2575.8	2575.8	2575.8	1998	1998	2575.8	
NO_x Emission Concentration (g/s)	3.31	2.25	2.25	2.25	2.22	2.22	2.25	
O_2 Content (%)	9.7	10.1	10.1	10.1	9.4	9.4	10.1	
Water Content (%)	**8.7**	**9.1**	**9.1**	9.1	**4.8**	**4.8**	**9.1**	
*** - Normalised at 273K, 101.3 kPa, dry, 5% O_2**								

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Table 2 - Building Dimensions within the Site used in the Dispersion Model (Revised)

Building	Approximate Centre Point		Height (m)	Length (m)	Width (m)	Angle (°)
	(X)	(Y)				
Building A	498610.1	180269.3	**19.95**	27.8	138.5	113.2
Building B	498641.6	180343.7	**19.95**	32.4	139	113.3
Residential Block A-28.5m	498492.2	180238.6	28.5	Not applicable as included as polygon buildings		
Residential Block A-25.5m	498510.5	180230.4	25.5			
Residential Block B-25.5m	498536	180158.1	25.5			
Residential Block B-21m	498554.3	180205	21			
Residential Block C-25.5m	498722.4	180136.7	25.5			
Residential Block C-21m	498722.4	180135.7	21			
Residential Block G-28.5	498441.2	180102.1	28.5			
Note: Details changed from previously assessment are shown in **bold underline**						

Table 3 - Revised NO_2 Annual Mean Concentration Changes and Associated Impact at Existing Sensitive Receptors in 2026 ('Worst-Case' Scenario)

ID	2026 Baseline (µg/m^3)	2026 Baseline + Proposed Development (µg/m^3)	Concentration Change (µg/m^3)	Long term average Concentration at receptor in assessment year	Impact Descriptor
R1	35.6	37.2	1.57	76-94% of AQAL	Slight
R2	25.8	32.2	6.36	76-94% of AQAL	Moderate
R3	34.1	35.4	1.35	76-94% of AQAL	Slight
R4	33.4	35.2	1.82	76-94% of AQAL	Slight
R5	31.0	31.9	0.95	76-94% of AQAL	Slight
R6	32.8	33.0	0.21	76-94% of AQAL	Negligible
R7	29.6	29.7	0.12	75% or less of AQAL	Negligible
R8	32.5	32.5	0.09	76-94% of AQAL	Negligible
R9	32.0	32.1	0.08	76-94% of AQAL	Negligible
R10	39.2	39.3	0.07	95-102% of AQAL	Negligible
R11	38.5	38.5	0.07	95-102% of AQAL	Negligible
R12	31.3	31.4	0.15	76-94% of AQAL	Negligible
R13	33.0	33.3	0.29	76-94% of AQAL	Negligible
R14	26.7	27.4	0.71	75% or less of AQAL	Negligible
R15	34.7	34.8	0.09	76-94% of AQAL	Negligible
R16	28.9	29.0	0.09	75% or less of AQAL	Negligible
R17	30.0	30.3	0.29	76-94% of AQAL	Negligible
R18	29.0	29.2	0.29	75% or less of AQAL	Negligible
R19	33.6	34.8	1.22	76-94% of AQAL	Slight

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ID	2026 Baseline (µg/m^3)	2026 Baseline + Proposed Development (µg/m^3)	Concentration Change (µg/m^3)	Long term average Concentration at receptor in assessment year	Impact Descriptor
R20	28.0	31.7	3.80	76-94% of AQAL	Moderate
R21	25.2	26.5	1.37	75% or less of AQAL	Negligible
R22	30.4	31.5	1.01	76-94% of AQAL	Slight
R23	35.6	37.2	1.53	76-94% of AQAL	Slight
R24	32.8	33.0	0.16	76-94% of AQAL	Negligible

Table 4 - Revised NO_2 Annual Mean Concentration at Proposed Residential Receptors to the South of the Proposed Development in 2026 ('Worst-Case' Scenario)

ID	2026 Baseline + Proposed Development (µg/m^3)	Annual Mean Air Quality Objective for NO_2
PR1	35.0	40
PR2	36.3	
PR3	37.4	
PR4	38.1	
PR5	37.8	
PR6	36.8	
PR7	36.5	
PR8	35.7	
PR9	36.3	
PR10	35.9	

Table 5 – Revised Critical Level ('Worst-Case' Scenario)

ID	Critical Level, CL (µg/m^3)	Total PC NOx (µg/m^3)	PC (as a %age of the CL)	Sensitivity Rating in relation to NO_x	Are emissions insignificant with no need for additional assessment
E1	30	0.24	0.80	Low	Yes (PC% is <100%)
E2	30	0.09	0.28	Low	Yes (PC% is <100%)
E3	30	0.59	1.97	Low	Yes (PC% is <100%)
E4	30	0.32	1.08	Low	Yes (PC% is <100%)
E5	30	2.17	7.22	Low	Yes (PC% is <100%)
E6	30	0.12	0.40	Low	Yes (PC% is <100%)
E7	30	0.71	2.36	Medium	Yes (PC% is <100%)
E8	30	0.06	0.21	High	Yes (PC% is <1%)
E9	30	0.22	0.74	Low	Yes (PC% is <100%)
E10	30	0.08	0.26	High	Yes (PC% is <1%)
E11	30	0.12	0.41	High	Yes (PC% is <1%)