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Shaun Williams
Senior Environmental Assessment Officer
Department of Planning, Industry and Environment
Locked Bag 5022
PARRAMATTA NSW 2124
Email: shaun.williams@planning.nsw.gov.au

Attention: Shaun Williams

NEXT DC S4 Data Centre Horsley Park (SSD-63741210)
EPA Advice on Environmental Impact Statement (EIS)

Dear Mr Williams,

Thank you for the request for advice from the NSW Environment Protection Authority (EPA) on the Environmental Impact Statement (EIS) for the above project at 16 Johnston Crescent, Horsley Park (SSD-63741210).

The EPA understands the proposal is for:

- Staged construction and operation of five data centre buildings with an operational capacity of 250 megawatts.
- The operation of 98 low voltage diesel generators as emergency back-up if there is mains power failure. This includes approximately 153 hours of annual testing.
- Storage of 2,850 tonnes diesel in aboveground tanks.
- 455 tonnes of lithium ion (as batteries) stored onsite.

The EPA has reviewed the following documents:

- Environmental Impact Statement, by Urbis, dated 20 June 2024
- Noise and Vibration Assessment, by Aurecon, ref: P521243, Rev G, dated 14 June 2024
- Air Quality Impact Assessment, by Northstar, ref: 24.1064.FR34V1, dated 5 June 2024
- Preliminary Hazard Analysis, by Aurecon, ref: P521243, Rev G, dated 17 June 2024

The EPA provides comment on noise and vibration impacts, air quality, greenhouse gas emissions, chemical storage and lithium battery storage at **Appendix A** and requests that additional information is provided as part of the Response to Submissions.

The EPA advises that should project approval be granted for the proposal, the proponent will need to apply for an environment protection licence for the premises, as the proposal triggers threshold volumes in Clause 9 (chemical storage), Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act) as the proposal tri

If you have any further questions about this matter or require more information on the comments provided, please contact Lisa Harvey on (02) 9995 5301 or at lisa.n.harvey@epa.nsw.gov.au.

Yours sincerely,

3 September 2024

James Boyle
Unit Head Regulatory Operations

Environment Protection Authority

Appendix A – EPA comments on EIS

1. Air Quality

The EPA reviewed the Air Quality Impact Assessment (AQIA) and EIS to understand the potential impacts to air quality. It is noted that there was insufficient information in these reports to allow the EPA to provide comment and that the AQIA was not prepared in accordance with the NSW EPA's Approved Methods for the Modelling and Assessment of Air Pollutants in NSW.

The EPA has noted the following in regard to the AQIA:

- The number of diesel generators listed in the AQIA is inconsistent with the number listed in the EIS. The inconsistency may have the potential to increase the number of test hours for the emergency generators to be more than 200 hours per year. This may trigger the scheduled activity 'Electricity Generation' under Cl17, Sch 1 of the POEO Act.

- The AQIA has not identified onsite diesel storage as a potential air emissions source.

- The AQIA has used the CALPUFF modelling suite to assess the air quality impacts from the proposal. No model choice justification has been provided. No information on the CALMET and CALPUFF model settings or input configuration files have been included in the report. It is noted that the settings for TAPM have been included. In accordance with Section 9.6 of the Approved Methods, the AQIA is required to include "detailed discussion and justification of all parameters used in the dispersion modelling". There was no justification in the AQIA for the choice of the CALPUFF modelling suite to assess the air quality impacts and site- specific meteorological data was not used.

- In the absence of onsite meteorological data, the AQIA has stated that it has adopted Bureau of meteorology (BoM) data from Horsley Park Equestrian Centre AWS (3.5km from the site) to nudge the TAPM model to generate the 3D.DAT file required for CALMET. This approach is reasonable, however with the absence of all model configuration information a full evaluation cannot be completed.

- Source locations and parameters have not been clearly identified in the AQIA.

- The proponent has classed the project as a non-scheduled premises for the in-stack concentration limits for diesel generators, however it will be a scheduled premises under Schedule 1 of the POEO Act. This requires the proponent to meet Group 6 emission limits prescribed under Schedule 2 Part 2 Division 3 of the POEO (Clean Air) Regulation (2022).

- The manufacturer's technical specifications provided for the back-up diesel generators are reported in the AQIA to be provided at STP and 5% O2 for the diesel generators. The EPA has attempted to replicate the emission rates but notes an inconsistency for NOx, CO and HC for the 3 MW genset, as shown below:

Pollutant	NOX	CO	HC	PM	Units
AQIA	9.560	0.789	0.131	0.032	g/s
TA-Air	9.570	0.590	0.098	0.032	g/s

Consideration of the magnitude of the discrepancy and that CO and HC were modelled at a higher concentration than needed, the result can be considered conservative. NOx may require to be remodelled after consideration of building wake effects and source locations are clarified.

The EPA recommends that the proponent provide further information regarding the modelling used in the AQIA, including:

- Sufficient model input file configuration information, at a minimum showing the model domain, station information and settings as per the Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion into the 'Approved Methods for the Modelling and Assessments of Air Pollutants in NSW, Australia'.
- Justify model configuration, in particular as to why other nearby weather stations weren't used in the inputs and validation.
- Justify model choice, in particular noting the location of receptors in the near field.
- Provide more information on the release type and if emission sources are subject to building downwash and whether this was included in the CALPUFF modelling.

The EPA recommends that the proponent provide further information regarding the emissions scenarios and calculations:

- Identify and confirm source locations for all emission scenarios.
- Demonstrate that the location of the generators in the realistic case provides a worst-case scenario for all sensitive receptors. This is to include, as a minimum, the results of a sensitivity analysis whereby the sensitivity of the modelling results to generator location is tested.
- Confirm the emission rates and adopt correct emission rates in any updated modelling (to include building wake effects).
- The AQIA identifies that there are other data centres in the local area, including the CDC Data Centre Roberts Road located approximately 1.3km to the northeast of the Proposal. The CDC Data Centre has the capacity to generate approximately 157 MW if all back up diesel generators are operating. The AQIA notes a third data centre, but it has not been identified or addressed further. The next closest data centre is 2km to the northwest of the Proposal. The AQIA has adopted a qualitative probability-based analysis for the completion of the cumulative effects of both data centres operating based on wind speed and frequency travelling from CDC Data Centre to the Proposal being 9.2%. The AQIA assessment states that "cumulative impacts are not expected to result in frequent, significant air quality impacts at surrounding land". The AQIA does not differentiate whether this statement is relevant to realistic or emergency conditions. Therefore, the proponent should provide quantitative information on cumulative air impacts from other data centres under realistic worst case scenario conditions.

The EPA also recommends that the Proponent evaluate the in-stack concentrations from the back-up diesel generators for all relevant air pollutants and demonstrate compliance with Schedule 2 Part 2 Division 3 Group 6 of the POEO (Clean Air) Regulation (2022).

2. Greenhouse Gas Emissions

The EPA notes that the EIS does not provide information on the projected greenhouse gas emissions or include detailed information on how the proposed mitigation measures were evaluated in the context of the project's emissions. Considering the nature and scale of the proposal, it is likely that the estimated greenhouse emissions may trigger the requirements in the *Draft Greenhouse Gas Assessment Guide for Large Emitters.* Additional information should be provided to allow the EPA to review and assess the estimated GHG emissions due to the proposal.

The EPA recommends that the proponent prepare a Greenhouse Gas Assessment in accordance with *Draft Greenhouse Gas Assessment Guide for Large Emitters*[1].

The greenhouse gas assessment must include (but not limited to) calculations, assumptions, and input data that are representative of the proposed diesel generator testing regime so the EPA may verify results and estimation of Scope 1 and Scope 2 emissions. All input data and assumptions must be robustly justified.

If the proposal is anticipated to emit 25,000 tonnes or more of scope 1 and 2 emissions (CO_2-e) in any financial year during the operational life of the project, the proponent should also provide:

1. A Greenhouse Gas (GHG) Mitigation Plan prepared in accordance with the most recent version available of the EPA's large emitters guide.

2. A Climate Change Adaptation Plan that incorporates the following components:

   a. A climate change risk assessment that addresses predicted climatic changes and the potential impacts of climate hazards on the environmental performance of the project.

Notes:

- A climate hazard is defined as a physical event (hydro-meteorological or oceanographic) that can harm human health, livelihoods, or natural resources. These could be direct climate hazards such as flooding of a sewage treatment plant, causing water pollution to nearby waterways, or indirect hazards such as a drought, where water is not available for dust suppression.
- A climate risk is the potential for adverse consequences for human or ecological systems from climate hazards (adapted from IPCC).
- The risk assessment must consider AdaptNSW regional climate change projections, for the near future and for the life of the project.
- Regional climate change projections are available on the AdaptNSW website.

   b. An assessment of measures to reduce climate risk, including:

      i. a description of measures that would be implemented to reduce likely climate change risks and potential impacts on the environmental performance of the project.

      ii. an assessment of:

      - the likely effectiveness of these measures
      - whether these measures will remain effective over time as climate change risks increase
      - whether contingency plans will be necessary to manage any residual risks.

[1] NSW EPA Guide for Large Emitters (hdp-au-prod-app-nswepa-yoursay-files.s3.ap-southeast-2.amazonaws.com)

iii. if contingency measures are deemed necessary under (ii) above, a description of how the project is designed so that these contingency measures can be readily implemented if and when necessary.

c. A description of how the effectiveness of measures to reduce climate risk will be monitored over time, including:

iv. a description of metrics that will be used to periodically evaluate the effectiveness of the adaptation management measures.

v. a description of the measures that would be implemented to monitor and periodically report on against these metrics.

d. A timetable for review of the project's Climate Change Adaptation Plan that reflects the project's lifespan and incorporates at each review the latest knowledge about predicted climate risks in the short and long term.

Notes:
Further guidance on considering climate adaptation can be found in the following resources:

- ISO 31000
- ISO/TS 14092
- AS 5334
- Climate Risk Ready NSW Guide (while this guide was developed for NSW Government agencies, the principles, steps and resources may assist the proponent to prepare a Climate Change Adaptation Plan).

3. Noise and Vibration Impacts

The Noise Impact Assessment (NIA) considers the construction and operational phases of the development, including the noise from maintenance testing of back-up power systems and the operation of these systems during emergency operation (Critical Power Failure).

Construction Phase
The description of "standard" construction mitigation in Section 7 of the NIA is generalised in nature and provides insufficient detail given the high exceedances of the construction noise management levels from the proposal. If the proposal is approved, there should be a thorough consideration of feasible and reasonable mitigation that is specific to the proposal (not generalised in nature) to minimise construction noise levels from the works.

Operation Phase
A conservative examination indicates that there could be minor exceedances of Project Noise Trigger Levels during emergency operation (Critical Power Failure), so the proponent should determine whether there are feasible and reasonable noise mitigation measures that could be deployed to achieve compliance. However, since it would be in a situation where there is a grid power outage (i.e. in an emergency and used temporarily) any decision by the EPA to apply noise limits in such a situation would be made following a review of the assessment of mitigation.

The EPA recommends that generator testing only take place during daytime hours, as proposed in the NIA (Section 6.1.1), **noting that testing is predicted to not exceed the Project Levels, with mitigation. We also note that with the mitigation recommended in the NIA, no corrections for annoying characteristics (such as low frequency noise and tonality) are applicable and if measurements after commissioning indicate otherwise, the NIA recommends further mitigation be installed.**

Should the proposal be approved, the EPA recommends the following noise related conditions are added to the consent:

- That standard construction hours apply to the project, unless for delivery of items that require a road occupancy licence. Respite periods should apply;
- Noise generated at the premises must not exceed the noise limits at the times and locations in the table below. The locations referred to in the table below are informed by the NIA.

Location	Noise Limits in dB(A)			
	Day	Evening	Night	Night
	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$	$L_{Aeq(15\ minute)}$	L_{AFmax}
321-325 Burley Rd, Horsley Park (Lot 70, DP 883089)	40	38	37	52
315-319 Burley Rd, Horsley Park (Lot 71, DP 883089)	39	38	38	52
301-313 Burley Rd, Horsley Park (Lot 6, DP 225031)	42	39	37	52
49-53 Greenway Pl, Horsley Park (Lot 9, DP 242752)	40	35	35	52

*Day means 7am-6pm Monday-Saturday, 8am-6pm Sunday and public holidays, evening means 6pm-10pm night means 10pm-7am Monday-Saturday and 10pm-8am Sunday and public holidays

The proponent must prepare and implement a Noise Management Plan that covers all premises-based activities and transport operations. The plan must include but need not be limited to:

a) all measures necessary to satisfy the limits in the above table at all times,
b) a system that allows for periodic assessment of Best Management Practice (BMP) and Best Available Technology Economically Achievable (BATEA) that has the potential to minimise noise levels from the facility,
c) effective implementation of identified BMP and BATEA measures, where considered feasible and reasonable,
d) measures to monitor noise performance and respond to complaints,
e) measures for community consultation including site contact details,
f) noise monitoring and reporting procedures.

The proponent must prepare and implement a detailed Construction Noise Management Plan (CNMP), prior to commencement of construction activities, that includes but is not necessarily limited to;

(a) identification of each work area, site compound and access route (both private and public)
(b) identification of the specific activities that will be carried out and associated noise sources at the premises and access routes,
(c) identification of all potentially affected sensitive receivers,

(d) the construction noise and vibration objectives identified in the Environmental Assessment,
(e) assessment of potential noise and vibration from the proposed construction methods (including noise from construction traffic) against the objectives identified in the Environmental Assessment,
(f) where the objectives are predicted to be exceeded an analysis of feasible and reasonable noise mitigation measures that can be implemented to reduce construction noise impacts,
(g) description of management methods and procedures and specific noise mitigation treatments that will be implemented to control noise and vibration during construction, including the early erection of any operational noise control barriers,
(h) procedures for notifying residents of construction activities that are likely to affect their noise and vibration amenity,
(i) measures to monitor noise performance and respond to complaints.

The proponent should prepare a at a Traffic Noise Management Strategy (TNMS), prior to commencement of construction and operation activities, **that include but are not necessarily limited to the following;**

- Driver training to ensure that noisy practices such as the use of compression engine brakes are not unnecessarily used near sensitive receivers.

- Best noise practice in the selection and maintenance of vehicle fleets.

- Movement scheduling where practicable to reduce impacts during sensitive times of the day;

- communication and management strategies for non-licensee/proponent owned and operated vehicles to ensure the provision of the TNMS are implemented.

- A system of audited management practices that identifies non conformances, initiates and monitors corrective and preventative action (including disciplinary action for breaches of noise minimisation procedures) and assesses the implementation and improvement of the TNMS.

- Specific procedures for drivers to minimise impacts at identified sensitive receivers.

- clauses in conditions of employment, or in contracts, of drivers that require adherence to the noise minimisation procedures and facilitate effective implementation of the disciplinary actions for breaches of the procedures.

4. Lithium Battery Storage

The EPA has reviewed the Preliminary Hazard Analysis Report and notes that 455 tonnes of lithium batteries will be stored onsite and replaced every 7 years. Lithium batteries can present a fire risk due to thermal runaway.

Should the proposal be approved, the EPA recommends the following conditions of consent:

- When defective or out of date batteries are replaced, they must be disposed of within 48hrs to prevent stockpiling of old batteries onsite.

- A routine maintenance and inspection protocol for lithium batteries should be implemented, including a protocol to address defects/battery replacement.

- Emergency fire response should include consideration of the most appropriate fire-fighting equipment and methods based on the hazards that lithium batteries present.

- Lower explosive limit (LEL) and temperature alarms must be installed to sense thermal runaway as proposed in Section 9.3.2.

5. Diesel Storage

In reviewing the Preliminary Hazard Analysis Report, the EPA notes that 2,850 tonnes of diesel will be stored in above ground tanks**,** which will trigger the requirement of environment protection licence for the premises, pursuant to Schedule 1 of the *Protection of the Environment Operations Act 1997* (POEO Act) for Chemical Storage.

The proponent must provide further information on how the diesel storage tanks will be filled, including the location of the fill points, whether there is any secondary containment and/or covered and whether fill protection controls such as shut off valves and level alarms will be installed.

Should the proposal be approved, the EPA recommends the following conditions of consent:

- That tanks should be either belly (within generators) or double skinned above-ground;
- Secondary containment or stormwater cut-off should be considered in the event of a spill of a belly tank.
- Fuel storage, including secondary containment and fill points, must comply with AS 1940:2017.