Trinity Consultants awnconsulting
The Tecpro Building, Clonshaugh Business & Technology Park, Dublin 17, Ireland / P +353 1 847 4220 / F +353 1 847 4257 / **awnconsulting.com**

04 March 2025

Office of Environmental Sustainability
Environmental Protection Agency
PO Box 3000
Johnstown Castle Estate
Co. Wexford

RE: EPA Industrial Emissions Licensing Application P1186-02

Dear Sir/Madam,

On behalf of the applicant, Amazon Data Services Ireland Limited, and further information requested 21 January 2025 by the EPA, we submit further information and clarifications in respect of the licence application P1186-02.

The following revised attachments are submitted with this response:

- Attachment-1-2-Non-Technical Summary_Rev
- Attachment-4-6-2-Raw Materials Interim Products_Rev
- Attachment-4-7-4-BREF Industrial Cooling Systems_Rev
- Attachment-4-8-1-Operational Report_Rev
- Attachment-4-8-3-Complete Baseline Report_Rev
- Amazon Data Services Ireland Ltd (ADSIL) Condition 3.17 Evaporative Cooling Water Diversion Feasibility Study (labelled P1186-01 Condition 3.17).
- Amazon Data Services Ireland Ltd (ADSIL) to the EPA regarding Conditions 7.2.1 and 7.2.2 of IED Permits: P1170-01; P1171-01; P1172-01; P1173-01; P1177-01; P1184-01; and P1186-01, dated 31st January 2024 (labelled P1186-01 Conditions 7.2.1 and 7.2.2)
- 257501.0094TR01 Stormwater Impact Assessment
- 257501.0094TN02_Air Quality RFI - Response to Items 1 through 9 related to the Air Quality Impact Assessment, and BAT Response Item 2(c)
- 237501.0343NR12 Noise Survey Report dated 30 January 2024;
- 237501.0505NR01 Noise Survey Report dated 5 December 2024.
- Revised Drawings Rev. C05

1. SITE LAYOUT

Request:

1. *Provide a more detailed site layout plan.* ***Example*** *of detail required: the screen shot taken from the foul water layout plan (Drawing: 21_123F-CSE-00-XX-DR-C–1200) below shows foul water from an area adjacent to the attenuation storm cell (yellow circle has been added to show this area), however the site layout plan (Drawing: 21_123F-CSE-00-XX-DR-C–0002) (see screen shot below) does not identify this area.*

Applicants Response:
Drawing 21_123F-CSE-00-XX-DR-C–0002 – Site Layout Plan (Rev. C05) has been updated (now REV C05) to include annotation to identify the security hut adjacent to the storm cell on site. Drawings 21_123F-CSE-00-XX-DR-C-0002 – Site Layout Plan, 21_123F-CSE-00-XX-DR-C-1100 – Storm, 21_123F-CSE-00-XX-DR-C-1200 – Foul, and 21_123F-CSE-00-XX-DR-C-2000 – Emission Layout Plan have also been updated, to include additional detail.

Request:

2. *Attachment 4-8-3 Complete Baseline Report refers to Building A, please provide further information on this building.*

Applicants Response:
There was a typo in Attachment 4-8-3 Complete Baseline Report, whereby Building U was incorrectly referred to as Building A. There is no Building A. Attachment-4-8-3-Complete Baseline Report has been updated.

Request:

3. *Is there a connection between the site containing buildings W, X and Y and the site containing buildings U and V such as service infrastructure, storm water, foul water etc.*

Applicants Response:
There is no connection between the site containing Buildings W, X and Y and the site containing Buildings U and V.

2. SEWER

Request:

1. *Section 5.2 of the NTS states "There is no process water discharged to the foul water network on site (domestic foul only), therefore no monitoring of the overall sewer discharge is proposed". However, in other documentation it is noted that emissions to sewer is comprised of domestic effluent and runoff from the tank farms, unloading bays and transformer compound, which have the potential to contain hydrocarbons. Please confirm and update accordingly.*

Applicants Response:
There is no planned discharge of trade effluent or other matter (other than domestic sewage or storm water) to the foul water network on site, therefore no monitoring of the overall sewer discharge is proposed.

The emission to sewer from the existing site (Buildings W, X and Y) is comprised of domestic effluent and stormwater runoff from the tank farms, unloading bays and transformer compound. The potential for stormwater runoff from high-risk areas (tank farms, unloading bays and transformer compounds) to contain hydrocarbons arises only in unplanned or emergency scenarios, such as a significant failure of primary containment combined with the simultaneous failure of the downstream hydrocarbon interceptor. Contaminated runoff from tank farms, unloading bays and transformer compound is not a routine or continuous discharge but an exceptional event with multiple layers of prevention control in place. The emission to sewer from the extended site (Buildings U and V) is comprised of domestic effluent only.

The NTS (Attachment 2-1), and Operational Report (Attachment 4-8-3) have been updated and included with this response.

Request:

2. *Further to the item above, it is shown in the stormwater drawing that **stormwater** from the tank farms serving Building W, Building U and Building V enters the stormwater drainage network as opposed to the foul sewer network. Please update the foul water drawing and stormwater drawing to show the location of all tank farms, unloading bays and transformer compounds for the entire installation illustrating the direction and discharge points for runoff from these areas.*

Applicants Response:

Stormwater from the tank farm (rain falling into the tank farm bund) to the south of Building W is directed to foul sewer and discharges at Emission Point SE1, as shown on Drawing 21_123F-CSE-00-XX-DR-C-1200 – Foul Water Layout Plan (Rev. C05).

Stormwater from the fuel tanks at Building U and Building V enters the stormwater network as shown on Drawing 21_123F-CSE-00-XX-DR-C-1100 – Surface Water Layout Plan (Rev. C05).

The drainage sump located in the bulk tank and top up tank concrete bund contains hydrocarbon detectors which automatically shut off drainage from these sumps if fuel is detected in the sump, preventing any contaminated stormwater from exiting the bund. These probes are also connected to the BMS/EPMS critical alarm.

Drawings 21_123F-CSE-00-XX-DR-C-0002 – Site layout Plan (Rev. C05), 21_123F-CSE-00-XX-DR-C-1100 – Storm, and 21_123F-CSE-00-XX-DR-C-1200 – Foul have been updated to show the location of tank farms, unloading bays and transformer compounds for the entire installation, illustrating the direction and discharge points for runoff from these areas.

Request:

3. *Provide a copy of the S99E notification or agreement letter from the IDA, as relevant to this application. Where a S99E has been issued, complete Attachment 7-3-1 Emission to Sewer.*

Applicants Response:

The scope of Section 99E applies to licences involving the discharge of trade effluent or other matter (excluding domestic sewage and stormwater) to a sewer.

S99E of the EPA Act 1992, as amended, is as follows:

> ***99E.**—(1) Where the Agency proposes to grant a licence (including a revised licence) which involves a discharge of any trade effluent or other matter (**other than domestic sewage or storm water [emphasis added]**) to a sewer, it shall obtain the consent of the sanitary authority in which the sewer is vested, or by which the sewer is controlled, to such a discharge being made.*

The only planned discharges to the foul sewer in this case are *domestic sewage and stormwater*. These are specifically excluded from the requirement to obtain separate consent from the sanitary authority under Section 99E. Since the planned discharges do not fall within the category requiring consent, there is no requirement to obtain sanitary authority approval.

There is no planned discharge of *trade effluent or other regulated discharge* to the foul sewer.

The potential for stormwater runoff from high-risk areas (tank farms, unloading bays and transformer compounds) to contain hydrocarbons arises only in unplanned or emergency scenarios, such as a significant failure of primary containment combined with the simultaneous failure of the downstream hydrocarbon interceptor. The downstream hydrocarbon interceptor is designed to capture other regulated discharge prior to entering the foul sewer, thus ensuring that only stormwater is leaving the site.

Request:

4. *In regard to sewer discharge points, the NTS states there is "one to the east of Building Y (emission point SE3) and one to the east of Building X (Emission Point SE4)", however, this is not what is shown on the foul water drawing. Please update the foul water drawing identifying the discharge point locations.*

Applicants Response:

There was a typo in the NTS. It is confirmed that Emission Point SE4 is to the east of Building Y (and not Building X as previously stated), and Emission Point SE3 is to the east of Building X (and not Building Y as previously stated). The NTS has been updated to rectify this error and is resubmitted as Attachment 1-2-Non-Technical Summary.

Request:

5. *Confirm the class and type of hydrocarbon interceptors to be installed prior to emission point SE4 (east of Building Y) and SE2 (east of Building W).*

Applicants Response:

There is a Full Retention Class 1 Hydrocarbon interceptor located at the Newbury Substation prior to emission point SE2. This is labelled FR2 on Drawing 21_123F-CSE-00-XX-DR-C-1200 (Rev. C05), included with this submission.

There is no hydrocarbon interceptor installed prior to emission point SE4. There are no areas of potential hydrocarbon contamination draining via this foul line.

Request:

6. *According to the operational report only domestic effluent from Building U and V are directed to the sewer drainage network, please confirm where runoff from the tank farm and unloading bays and transformer compound, if applicable, are directed to?*

Applicants Response:

Stormwater runoff from the tank farm and unloading bays and transformer compound from Building U and V is directed to stormwater via the Class I Forecourt Separator at FRS 3.

The new substation at Building U and V is a building that contains switchboards and UPS, switchgear and a small oil-filled transformer inside the building. There is an externally located transformer adjacent to Building V, as marked on Drawing 21_123F-CSE-00-XX-DR-C-1100 (Rev. C05). Stormwater from these areas is directed to the stormwater network, and ultimately passes through the Class I Bypass Separator at FRS 5.

Request:

7. Confirm where foul water from the Newbury Substation and the proposed new substation will discharge to? In the event of foul water entering the installation network, describe how this will be managed?

Applicants Response:

Domestic foul water from the Newbury Substation building (domestic effluent only) is discharged into the site network. Stormwater from the Newbury Substation external transformer bays is directed to the

foul water network via Class I hydrocarbon interceptor (FR 2). The Class I hydrocarbon interceptor at the transformer bays includes alarm systems and connected to BMS. The Response to an Interceptor Alarm is set out under Stormwater Response Item 7.

There is no foul water discharge from the proposed new substation, this is directed to the stormwater network, see previous response.

3. STORMWATER

Request:

1. *No reference is made in the NTS to residual cooling water being discharged into the stormwater network. However other documentation refers to residual cooling water also being discharged into the stormwater network in addition to runoff. Please clarify.*

Applicants Response:

It can be confirmed that the NTS does refer to residual cooling water being discharged into the stormwater network. Section 5.3 of the NTS states that *"The emissions to storm sewer consist of stormwater runoff from building roofs, yards and the road network and residual evaporative cooling water. The cooling water discharged from the evaporative cooling units is effectively mains water that has passed through the cooling equipment."*

Request:

2. Condition 3.17 of P1186-01 which relates to Evaporative Cooling Water requires *"The licensee shall carry out a study on the feasibility of diverting evaporative cooling water to sewer. The report shall be submitted to the Agency for approval within twelve months of the date of grant of the licence."* Describe what measures to date have been taken to address the discharge of residual cooling water to the stormwater network.

Applicants Response:

ADSIL has made a concerted effort to obtain representative sampling data for the evaporative cooling water discharge to inform a study on the feasibility of diverting evaporative cooling water to sewer.

However, to date, it has not been possible to obtain sampling data, as there has been no outfall to storm sewer from the cooling systems since the license has been granted. A methodology is in place to sample the discharge directly from the AHUs which will be undertaken should there be any discharge from the cooling systems. Given the challenges encountered, ADSIL propose not to reroute the evaporative cooling discharge to the foul water network.

ADSIL have agreed with the EPA Office Of Environmental Enforcement (OEE) to review this position on an ongoing basis throughout the duration of operation.

The full ADSIL response to Condition 3.17 and OEE response is included with this response, which outlines the key characteristics of the evaporative cooling systems at ADSIL data centres, the relative volumes of evaporative discharge observed and the challenges AWS have encountered in obtaining representative sampling data to be incorporated into any subsequent feasibility study.

Request:

3. It is noted that hydrogen peroxide, which is used for cleaning of AHUs and pipelines, ultimately discharges with the cooling waters into the stormwater system. Provide further information on the

expected quantity of hydrogen peroxide to be stored and used on site, frequency of use of hydrogen peroxide and the properties of the residual hydrogen peroxide prior to discharge.

Applicants Response:

As set out in the operational report:

> *Cleaning of the water-based cooling systems including all AHUs and pipelines with hydrogen peroxide solution is only undertaken if positive legionella samples have been detected in the unit. In accordance with ADSIL legionella management procedure, every cooling system is sampled annually for legionella bacteria. If a result exceeds 1000CFU/L, the air handling unit is disinfected with a hydrogen peroxide solution. Based on past experience, disinfection is required on approximately 10% of systems annually. During the disinfection process, 50 ml of hydrogen peroxide solution is dosed into the air handling unit and water is recirculated through the cooling system. The disinfected water is discharged to the cooling system drain and ultimately to the storm network. Any residual hydrogen peroxide is oxidised by organics in the onsite storm drainage network and converted to water and oxygen prior to discharge via storm sewer.*

There is no storage of hydrogen peroxide at the site; it is brought in and used only as needed. The estimated annual usage of hydrogen peroxide varies depending on if legionella is detected. As outlined above, when required, 50 ml of hydrogen peroxide solution is dosed into the AHU. During dosing, the AHU is placed in blowdown mode, continuously cycling water through the unit to flush it out. Any residual hydrogen peroxide is oxidised by organics in the blowdown and the onsite storm drainage network and converted to water and oxygen prior to discharge via storm sewer.

Request:

4. Describe how runoff from the area where urea tanks are stored is managed. Update relevant drawings illustrating the direction and discharge points for runoff from these areas.

Applicants Response:

The urea tanks are stored inside the individual generator enclosures. There is no stormwater runoff from the urea tanks. If there is a leak from the urea tanks this is contained within the generator enclosures. The urea tanks are equipped with overflow and leak protection devices and alarms and controlled based on low and high level sensors. The level gauge sensors are integrated with an onboard controller that triggers audible alarms in case of overfilling or sudden loss of urea from within the tank.

The urea filling process is managed via the unloading yard and distribution manifold (refill cabinet), which serves to fill the 11 no. urea day tanks (10 no. for Building U and 1 no. for Building V) located within each individual generator container. Drawing 21_123F-CSE-00-XX-DR-C–0002 – Site Layout Plan (Rev. C05) and Drawing 21_123F-CSE-00-XX-DR-C-1100 – Storm (Rev. C05) have been updated to show the location of the distribution manifold (urea refill cabinet).

During unloading, spill containment procedures will be in place to prevent spills from entering stormwater drains. If a spill occurs, the site spill response will be engaged.

Request:

5. Operational report states "Drainage of rainwater from the top up tank bund south of Building U is directed to the surface water drainage network*".* Identify the location of the top up tank bund on a relevant drawing and describe how runoff on this area is directed and managed.

Applicants Response:

The Drawing 21_123F-CSE-00-XX-DR-C-1100 – Storm (Rev. C05) has been updated to identify the location of the top up tank bunds on the relevant drawing.

As set out in the Operational Report, drainage of rainwater from the top up tank bund south of Building U is directed to the surface water drainage network. The connection is made to the surface water drainage network directly to the north of the top up tank bund at SWMH 1.0A.

The drainage sump located in the top up tank concrete bund contains hydrocarbon detectors which automatically shut off drainage from these sumps if fuel is detected in the sump, preventing any contaminated stormwater from exiting the bund. These probes are also connected to the BMS/EPMS critical alarm.

Drainage from the top up tank bund and the adjacent unloading bay is directed west through a Class I forecourt hydrocarbon interceptor (FRS 3). The hydrocarbon interceptor is equipped with an oil warning system which is connected to the BMS/EPMS critical alarm.

Request:

6. Update the drainage drawings to reflect the class of hydrocarbon interceptors to be installed on the stormwater drainage system prior to discharge.

Applicants Response:
Drawing 21_123F-CSE-00-XX-DR-C-1100 – Storm (Rev. C05) and Drawing 21_123F-CSE-00-XX-DR-C-1200 – Foul (Rev. C05) have been updated with annotations and a table of features to reflect the type and class of hydrocarbon interceptors to be installed on the stormwater drainage system prior to discharge.

Request:

7. It is noted that the hydrocarbon interceptors are alarmed and connected to the BMS; please describe in detail the response action on site, in the event that these alarms are activated.

Applicants Response:

The hydrocarbon interceptors are connected to the BMS alarm system. In the event that a BMS alarm is activated, the following steps are taken:

- The BMS sends out an email to the subscribers on the email list.
- Data Centre Engineering Operations (DCEO) Engineering Operations Technicians (EOTs) receive this email and page. If the EOT is in a position to reply, he/she should REPLY ALL giving a brief description of what is happening. "DCEO onsite investigating".
- The FOC call the site security and request communication from DCEO.
- Security Notify DCEO EOT of the alarm via Radio.
- In order to speed up the investigation and communication, the EOT onsite must designate somebody (may be located in a different building) to be the Incident Controller (IC). The IC is usually better placed to carry out communications or updates. This allows the onsite EOT to focus on the investigation and he/she can keep the IC updated directly.
- The IC should keep communication lines open with the onsite EOT via radio and keep the ticket updated with relevant information. Updates are required every 5 minutes until event is stood down.

If a spill is discovered, EOT will revert to the site Spill Response Plan. The Installation is required to have Accident Prevention Procedure (Condition 9.1 of the IEL), and Emergency Response Procedure (Condition 9.2 of the IEL). These procedures include a Spill Prevention and Response Procedure to (i) prevent spills of hazardous and/or dangerous material such as diesel and oil, and (ii) where a spill has occurred, to respond in a safe, effective and timely manner to mitigate the impacts of the spill. Additionally, the Emergency Action Procedures must be followed before, during, and after an emergency event.

Hydrocarbon interceptors are inspected at the time of installation and inspected and cleaned typically every 6 months by a specialist vendor.

The bunds and delivery bays are equipped will fuel detection probes to prevent any contaminated stormwater from exiting the bund. These probes are also connected to the BMS system, and a critical alarm is alerted if hydrocarbons are detected in the sump. If hydrocarbons are detected, the drains close, preventing any discharge from the sumps. The sump probes are inspected annually by the vendor and are also included in the operations inspections.

There are shutoff valves (penstocks) at the stormwater outfall from the site that can be closed in a major spill event.

In summary, in the event of a critical alarm being activated, on site response procedures will be activated. This includes immediate communication to the on-site response team, initiating spill containment and clean-up measures.

Request:

8. Describe what treatment is undertaken to the mains water when used as cooling water. Provide details of the composition of the residual cooling water at discharge.

Applicants Response:

There is no treatment undertaken to the mains water when used as cooling water.

The key characteristics of the evaporative cooling systems are as follows:

- Systems are designed to operate intermittently, with cooling cycles directly correlated to ambient air temperatures. During periods of lower outdoor temperatures, the systems may not engage at all. This accounts for the majority of operation;
- Cooling setpoints for the systems are typically higher than the outside ambient air temperatures. This results in the systems only running when necessary to maintain internal comfort levels. Setpoints typically are higher than high ambient air temperatures observed in Ireland even in summer months; and
- Volumes of water discharged from the evaporative cooling process are minimal due to the elevated temperature setpoints not being achieved.
- The fresh air is passed over evaporative cooling pads that are dampened by the cooling water as it is drawn into the building, the external air is cooled through an air/water heat exchange before entering the data hall. The majority of the evaporative cooling water is evaporated in this process.

Given these operational factors, the volume of residual cooling water discharged to the stormwater network is extremely limited. AWN has conducted an accumulative capacity assessment (Technical Note: Stormwater Impact Assessment; Clonshaugh, Dublin 17) to evaluate the potential impact of this discharge, Table 2.1 provides the estimation of the composition cooling water at discharge. Since the cooling water originates from the mains supply and undergoes no additional on-site treatment, it contains no hazardous substances at the point of discharge.

Request:

9. Section 4.3.1 of the Operational Report refers to "drainage infrastructure including 2 no. underground attenuation systems". However, Attachment 4-8-3 Complete Baseline Report and drawings submitted as part of the application refer to 3 no. underground attenuation storm cells. Confirm the attenuation measures to be installed onsite.

Applicants Response:

To clarify, there are 3 no. attenuation systems for the Installation. Section 4.3.1 of the Operational Report refers to "drainage infrastructure including 2 no. underground attenuation systems". This is a typo and should state "3 no. underground attenuation systems". The Operational Report has been updated to reflect this. The 3 no. attenuations systems are identified and described in detail in Section 4.4.2, with 2 no. attenuation systems described for the existing Installation (Buildings W, X and Y) and 1 no. attenuation systems described for the extended Installation (Buildings U and V).

Request:

10. Confirm where stormwater from the from Newbury Substation and the proposed new substation will discharge to? In the event stormwater is entering the installation network, describe how this will be managed?

Applicants Response:

The risk of stormwater contamination from the Newbury Substation and the proposed new substation sites is considered low. As a result, no additional monitoring is proposed at the connection point between these sites and the licensed installation's stormwater network. The routine downstream monitoring outlined in Attachment-7-7-Stormwater Discharges (daily visual inspection, and weekly sampling) is deemed sufficient to identify any issues within the overall site and stormwater network.

If contamination is detected, or stormwater trigger levels exceeded, in the licensed installation's stormwater, the site response plan will be activated, including a root cause analysis to determine whether the Newbury Substation and the proposed new substation sites are the source of contamination. If identified as the source, the operator of the Newbury Substation and the proposed new substation will be contacted immediately to implement corrective measures.

4. ENERGY USE

Request:

1. Given the varying figures provided in the documentation, please confirm the quantity (tonnes) of diesel and HVO which will be stored on site and used. In regard to storage capacity, please review the information provided in page 8 and page 12 of Attachment-7-1-3-2 and the information provided in Attachment 4.6.2.

Applicants Response:

HVO and diesel can be stored simultaneously in the same fuel storage tanks. There are no separate or dedicated tanks exclusively for HVO. Due to HVO's slightly lower density (0.846 t/m³ compared to diesel's 0.86 t/m³), this difference affects the total storage capacity when measured in tonnes.

AWS will use HVO if it is available to order from the supplier. When HVO is not available to order, diesel will be ordered for use on site. The ratio of diesel to HVO in the fuel tanks at any time will vary depending on the availability of HVO. Table 4.1 details the total tank volume and the calculated maximum potential storage capacities for diesel and HVO.

Table 4.1 Storage of Diesel and HVO Fuel

Tank	Quantity of tanks	Storage volume per tank (m^3)	Total storage volume (m^3) @90% full	Total capacity (tonnes) diesel (0.86 t/m^3)	Total capacity (tonnes) HVO (0.846 t/m^3)
Existing Installation					
Bulk Fuel Tanks (W)	3	52	140.4	120.74	118.78
Bulk Fuel Tanks (X, Y)	5	54	243.0	208.98	205.58
Back up Gen Day Tanks (X, Y)	27	2.5	60.75	52.25	51.39
Back up Gen Day Tanks (W)	13	2.5	29.25	25.16	24.75
Fire Sprinkler Pumps	6	1.0	5.4	4.64	4.57
Extended Installation					
Bulk Fuel Tanks (U, V)	1	40.0	36.0	30.96	30.46
Back up Gen Belly Tanks (U)	10	16.0	144.0	123.84	121.82
Back up Gen Belly Tanks (U)	1	4.95	4.455	3.83	3.77
Back up Gen Belly Tanks (V)	1	8.5	7.65	6.58	6.47
Back up Gen Day Tanks (V)	1	1.0	0.90	0.77	0.76
Fire Sprinkler Pumps	2	0.45	0.81	0.70	0.69
Fire Sprinkler Pump	1	0.9	0.81	0.70	0.69
Total			**673.425**	**579.15**	**569.72**

There is a total fuel storage capacity on site of 748,250 litres (748.25 m3), assuming all tanks are filled to 90% maximum, which is standard ADSIL policy.

In a worst case scenario, the fuel tanks will contain 100% diesel (i.e. 579.15 tonnes) and 0% HVO (0 tonnes), in the best case scenario, the fuel tanks will contain 100% HVO (i.e. 569.72 tonnes) and 0% diesel (0 tonnes). In reality, the ratio of diesel to HVO will vary and the amount of HVO and diesel will vary between these 2 scenarios.

The quantity of liquid fuel to be used at the site on an annual basis is c. 1409.6 tonnes of diesel OR c. 1383.7 tonnes of HVO fuel.

Request:

2. Given the varying figures provided in the documentation, confirm the volume of mains water required for the installation and the expected volume of rainwater to be required.

Applicants Response:

Current Water Demand per annum: 17,886 m^3

Additional Water Demand per annum: 1,085 m^3

Total Water Demand (overall Installation): 18,972 m^3

It is estimated that there will be c. 792 m^3 water available from rainwater harvesting, however this supply is not guaranteed and so the figures above are the estimated demand from the public mains.

Request:

3. Confirm the hours of operation considered in Attachment 4.6.1. Water, Energy Usage.

Applicants Response:

The Diesel/HVO usage is based on the full 150 hrs of operation, and including fuel from testing of the generators. Water and electricity usage are based on 24/7 operation of the Installation.

Request:

4. Provide information on the options considered to decrease or offset the use of fossil fuelled energy.

Applicants Response:

The options considered to decrease or offset the use of fossil-fuelled energy are set out in the alternative energy submission by Amazon Data Services Ireland Ltd (ADSIL) to the EPA regarding Conditions 7.2.1 and 7.2.2 of IED Permits: P1170-01; P1171-01; P1172-01; P1173-01; P1177-01; P1184-01; and P1186-01, dated 31st January 2024, which is included with this response

In January 2023, ADSIL started the transition to the use of hydrotreated vegetable oil (HVO) to power backup generators at all its sites. ADSIL is aiming to switch entirely to HVO at all its infrastructure sites across Europe, including Ireland. For this to happen an accessible, steady, and sustainable supply of HVO will be required. To support the adoption of HVO, ADSIL is engaged with suppliers who are developing a global supply chain, working with local organisations (e.g., Certa in Ireland) and is investing in the procurement of HVO from renewable sources, with raw materials that are traceable to their origins and not derived from sources that impact highly biodiverse areas.

5. WASTE

Request:

1. Attachment 8-1-2 states that "Hazardous wastes generated onsite is stored in a covered hardstanding space inside each building or in covered bunds in designated areas external to the building". Identify the location of these designated areas on a relevant drawing.

Applicants Response:

Hazardous waste generated, such as containers that previously held hazardous substances or waste generated during cleaning activities, are placed in lined and labelled hazardous waste bins located internally near the unloading bays (shown on Drawing 21_123F-CSE-00-XX-DR-C–0002 – Site Layout Plan (Rev. C05).

At this time there is no external storage of hazardous wastes generated, if external storage is required in future these will be in bunded and covered chemical stores.

6. NOISE

Request:

1. Provide a drawing which illustrates the location of proposed noise monitoring locations.

Applicants Response:

Figure 6.1 below is reproduced from Figure 3 in the Attachment-7-1-3-2 Noise Impact Assessment which accompanied the licence application. The coordinates of the points are presented in the table in Attachment 7-5. The locations correspond to those used in the baseline noise survey and recent compliance noise survey.

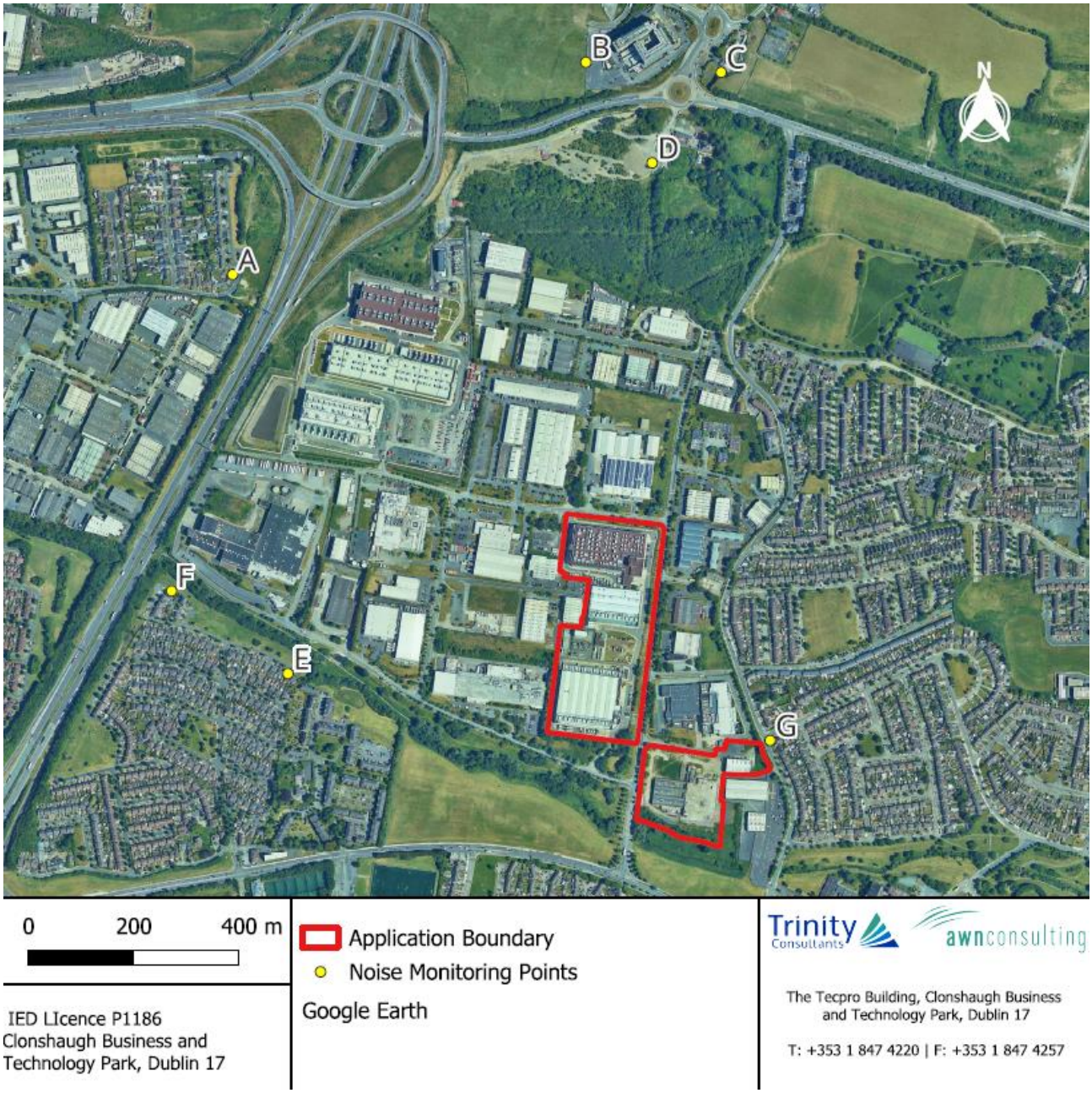

Figure 6.1 Proposed Noise Measurement Locations

Request:

2. Provide an updated noise impact assessment which includes more current background noise levels or provide justification for the years selected and why more recent background levels have not been considered.

Applicants Response:

In year 2024 ADSIL prepared this IED Licence applications review in order to include Buildings U and V within the licence. At that time, Buildings W, X and Y were already in operation; also other sites outside ADSIL's control had come into operation. Therefore it was not possible to re-create pre-existing noise environment before any of these sites were operational, and, in this instance, reference was made the noise surveys carried out previously.

In general, as ambient noise levels increase gradually over time due to the operation of new developments along with a corresponding increase in traffic flows, use of baseline noise levels from a

period before the site was operational is appropriate and leads to a conservative environmental noise assessment, as the ambient noise levels tend to be slightly lower.
The paragraphs above explain why it is not possible to include 'current background noise levels' and why the previous years' background noise levels were used in the assessment.

Request:

3. Provide further information on what Scenario A, Scenario B and Scenario C relate to. Include the number of generators considered, run times, loading etc.

Applicants Response:

The following paragraphs are taken from Section 5.4 of Attachment 7-1-3-2:

> *This section presents the predicted noise levels at the nearest noise sensitive locations. The cumulative impact of all modelled noise sources on the site has been assessed for two distinct operational scenarios.*
> *Scenario A would be considered to be the most representative of the day to day operation.*
> *Scenario B is representative of emergency situation; a loss, reduction or instability of grid power supply, critical maintenance to power systems, a request from the utility supplier (or third party acting on its behalf) to reduce grid electricity load. It should be noted that such an event is an extremely rare occurrence.*
> *Scenario C is representative of generator testing scenario; where two generator units (in this instance, associated with Building U, are being tested during daytime hours).*

In Scenario A, no generators are running, and the site is supplied with electricity from the grid.

In Scenario B, it is confirmed that all of the onsite emergency back-up generators at buildings W, X, Y, U and V are assumed to run at 100% load, as a worst-case.

In Scenario C, it is confirmed that, as described above, two generators at Building U are being tested during daytime hours. The load of the generators is assumed to be 100%. In practice, all generators will be tested in turn, but this Scenario C was designed to evaluate the worst-case situation where the generators under test are closest to noise-sensitive locations. Given that the predicted noise levels are within criteria for daytime generator testing of 55 dB $L_{Aeq,15mins}$, it follows that testing of generators individually at any location within the Installation will also result in compliant site noise levels at NSLs.

Request:

4. Under Scenario B, the installation will not comply with the evening and nighttime noise limits. Please describe how the potential for exceedances will be managed and what mitigation measures will be implemented to ensure compliance with the relevant noise limits.

Applicants Response:

In the assessment presented in of Attachment 7-1-3-2, Scenario B, being an emergency situation where there is a loss of electrical power to the site from the grid, is expected to be an extremely rare occurrence. For this reason it is considered that there can be a flexibility of the normal operational noise criteria.

The following paragraphs are taken from Section 4.3 of Attachment 7-1-3-2:

> *There are certain plant items within the facility that are designed to be used in emergency situations, for example, when grid power supplies fail. It is common practice to allow a relaxation of noise limits associated with emergency plant operations. Section 4.4.1 of EPA NG4 contains the following comments in relation to emergency plant items:*

"In some instances, licensed sites will have certain items of emergency equipment (e.g. standby generators) that will only operate in urgent situations (e.g. grid power failure). Depending upon the context, it may be deemed permissible for such items of equipment to give rise to exceedances in the noise criteria/limits during limited testing and emergency operation only. If such equipment is in regular use for any purposes other than intermittent testing, it is subject to the standard limit values for the site".

It is therefore considered that the proposed noise criterion of 55dB $L_{Aeq,(15mins)}$ is appropriate in emergency scenarios for daytime, evening and night-time periods.

This approach is fully supported by the NG4 guidance.
The predicted noise levels for Scenario B (see Table 15 of Attachment 7-1-3-2) show that the 55dB $L_{Aeq,(15mins)}$ is complied with at all NSLs. It is not considered necessary to implement noise mitigation measures in respect of Scenario B.

Request:

5. The predicted cumulative impact only includes the installation. Update the cumulative noise impacts to include other nearby and adjacent developments.

Applicants Response:

Cumulative Assessment

Cumulative noise impact was addressed in the noise report prepared for the planning application, in AWN report DK/21/12378NR01 dated 29 September 2021 (Appendix C to Attachment-6-3-2 EIA Screening Planning Aug 2022). The methodology was to consider the addition of the predicted site noise levels to the measured background noise levels and comment on the cumulative impact through discussion of the change in noise levels. The cumulative noise impact assessment is presented in Tables 19 and 20 in that report, reproduced here:

Table 6.1 Review of Predicted Changes in Existing Noise Levels – Day

Ref	Daytime (07:00 – 23:00 hrs)				
	Predicted dB $L_{Aeq,T}$	Background Level dB $L_{A90,T}$	Cumulative Noise Level (dB(A))	Change in Noise Level (dB(A))	EPA Glossary of Impacts
R01	42	57	57.1	+0.1	Not Significant
R02	43	57	57.2	+0.2	Not Significant
R03	40	57	57.1	+0.1	Not Significant
R04	38	57	57.1	+0.1	Not Significant
R05	39	57	57.1	+0.1	Not Significant
R06	39	57	57.1	+0.1	Not Significant
R07	37	57	57	0	Imperceptible
R08	33	50	50.1	+0.1	Not Significant
R09	34	50	50.1	+0.1	Not Significant
R10	34	50	50.1	+0.1	Not Significant

Table 6.2 Review of Predicted Changes in Existing Noise Levels – Night

Ref	Night (23:00 – 07:00 hrs)				
	Predicted dB $L_{Aeq,T}$	Background Level dB $L_{A90,T}$	Cumulative Noise Level (dB(A))	Change in Noise Level (dB(A))	EPA Glossary of Impacts
R01	42	44	46.1	+2.1	Not Significant
R02	43	44	46.5	+2.5	Not Significant

Ref	Night (23:00 – 07:00 hrs)				
	Predicted dB $L_{Aeq,T}$	Background Level dB $L_{A90,T}$	Cumulative Noise Level (dB(A))	Change in Noise Level (dB(A))	EPA Glossary of Impacts
R03	40	44	45.5	+1.5	Not Significant
R04	38	48	48.4	+0.4	Not Significant
R05	39	48	48.5	+0.5	Not Significant
R06	39	48	48.5	+0.5	Not Significant
R07	37	48	48.3	+0.3	Not Significant
R08	33	46	46.2	+0.2	Not Significant
R09	34	46	46.3	+0.3	Not Significant
R10	34	46	46.3	+0.3	Not Significant

Moreover, the cumulative assessment discussed the planning application Ref Planning Ref: 3865/20 which refers to the Lidl Ireland GmbH site to the southeast of the DUB90 site. The report stated:

> *Review of the planning file associated with the above scheme confirms that a detailed noise assessment was not completed however the development will be expected to be designed and operated to comply with typical Dublin City Council noise guidance and criteria.*

It should also be noted that it is normal that even if a specific noise report has been carried out by the sites adjacent a proposed site, the data presented in such reports is not normally sufficient to re-produce that site's noise model in order to predict cumulative noise levels. Where such reports exist, it is potentially possible to combine noise levels predicted at the same locations with predicted noise levels from the proposed site, in order to inform a cumulative assessment. However, this was not the case in this instance.

Operational Noise Survey

Notwithstanding the above, in order to respond to the point raised here, the cumulative noise due to this site and other sites in the vicinity can be quantified through noise measurement, as has been done during two annual IED Licence noise compliance surveys, as follows:

- Noise surveys during November and December 2023, presented in AWN report 237501.0343NR12 dated 30 January 2024;
- Noise surveys during November 2024, presented in AWN report 237501.0505NR01 dated 5 December 2024.

Measured noise levels are inherently cumulative in that they contain noise contributions from all operating sources at the time of the measurement. Noise survey Location G (See Figure 1 above) is the closest noise survey location to the site under consideration here. The noise survey results are re-produced in the table below, focussing on night-time periods which are critical to the assessment:

Table 6.3 Measured Noise Levels

Date	Period	Start Time	Measured noise level, dB $L_{A90,15min}$	Comments
15 Nov 2023	Night	23:41	42	The noise environment during this period was made up of occasional road traffic along the Clonshaugh Road and mechanical noise from the Clonshaugh business park. This was not associated with the site under review here and believed to be from units closer to the measurement position. A reverse alarm was also noted within the business park during this measurement period.

Date	Period	Start Time	Measured noise level, dB $L_{A90,15min}$	Comments
15 Nov 2023	Night	00:49	41	The noise environment during this period was made up of occasional road traffic along the Clonshaugh Road and mechanical noise from the Clonshaugh business park. This was not associated with the site under review here and believed to be from units closer to the measurement position.
13 Nov 2024	Night	23:00	49	The noise environment during the nighttime period was dominated by distant road traffic noise. Other noise sources included aircraft, wind rustle and HGVs within the Clonshaugh business park. No audible noise from the site was noted.
14 Nov 2024	Night	00:05	48	

In 2023, the total i.e. cumulative noise levels were 41-42 dB L_{A90}, which is within the IED limits. In the 2024 survey, although the measured total noise levels were in excess of the IED criteria, there was no audible site noise in this context.

In summary while it was not possible (and is not typically possible) to assess model and predict the cumulative noise impact, it was considered in detail at planning stage and verified through two annual noise surveys.

7. PLANNING

Request:

1. Update the information on all relevant leases to both sites and outlining the renewal dates and whether the leases make provision for decommissioning of building / lands to original baseline site conditions should Amazon abandon / leave the site.

Applicants Response:

The current Lease Information for the site is set out in Table 7.1 below. The site will be decommissioning / closed in accordance with Condition 10 of the IEL.

Table 7.1 Lease Information

Property Description/ Folio	Owner / Lease Information
Unit AF1 Clonshaugh Business Park Folio DN199603F	Pargo Properties Limited ADSIL holds under a lease dated 4 January 2011 (initially for a term of 120 months and further extended by Exercise of Option to Renew Agreement dated 4 January 2021 for a period of five years commencing on 8 February 2021) expiring on 7 February 2026.
Former Cahill Printers Facility Folio DN110431L and DN110428L	Mountcoal Investment Properties Limited The lease on Mountcoal Properties was extended in 2024 for an additional 5 years from 05/14/2023 to expire on to 05/14/2028

8. ACCIDENTS

Request:

1. What is the total quantity in tonnes of diesel and / or HVO stored on site - Attachment 4.6.2 Raw materials, Intermediates and Products has 365 Tonnes of gas oil stored and annual usage of 627 tonnes. However, Attachment 4.7.3 BREF Emissions from Storage has quantities that exceed the COMAH thresholds. See screen shot below:

Applicants Response:

Under COMAH (Control of Major Accident Hazards Involving Dangerous Substances), Schedule 1 to the S.I. No. 209/2015 - Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 the following thresholds apply for petroleum products such as diesel; Lower-tier threshold 2,500 tonnes, and Upper-tier threshold: 25,000 tonnes.

The maximum quantity of petroleum products (diesel) that may be stored on site is 579.15 tonnes and does not meet the threshold for lower tier (2,500 tonnes).

In terms of regulatory classification, HVO is not included under S.I. No. 209/2015 - Chemicals Act (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015. This means that HVO is not considered a controlled substance under the COMAH (Control of Major Accident Hazards) Regulations.

9. AIR

Items 1 to 9 related to the Air Quality Impact Assessment have been addressed separately in a document prepared by Ed Porter of AWN Consulting (AWN Letter 257501.0094TN02_Air Quality RFI) and included with this response.

Request:

10. Clarity the source and nature of the HVO feedstock and outline how you intend to comply with the requirements of REDIII Directive.

Applicants Response:

The Installation will use suppliers that can provide Proof of Sustainability (PoS) under the Renewable Energy Directive (RED) Voluntary Scheme system. Ireland does not have its own national RED certification scheme so compliance must be demonstrated through a European Commission approved scheme or the national scheme of another Member State.

Under the PoS the HVO Feedstock is certified to ensures that it meets the definition of waste or residue under the REDIII Directive. Presently, the site utilises Certa as a supplier of HVO Fuel. Certa's current supplies of HVO is derived from used cooking oil (UCO). Other waste-based feedstocks such as palm oil mill effluent (POME) and tallow are also utilised in the production of HVO provided that they meet the definition of waste or residue under the REDIII Directive.

While the Installation aims to use HVO whenever possible, it cannot commit to using it exclusively due to potential challenges with supply. It is likely that during the operational lifetime HVO and diesel fuel will both be used as they will be blended in the same tank (See section 4 Energy Use).

Request:

11. Where UCO (used cooking oil) or other waste materials are employed as feedstock for HVO generation, please demonstrate that the use of this waste material for this purpose complies with the requirements of the Waste Framework Directive.

Applicants Response:
HVO at the site will be sourced from reputable suppliers to ensure it meets the high-quality standards. HVO is a manufactured product designed specifically for fuel use and is not a waste material. HVO fuel complies with EN 15940 standards (paraffinic diesel fuel).

There is currently no significant commercial HVO fuel production in Ireland. A substantial proportion of imported HVO fuel is produced in the Netherlands, with additional sources including the USA, Sweden, Belgium, China, and Italy. The fuel is produced outside Ireland and imported into Ireland as a finished product. Since the imported HVO fuel is a product, and not a waste, its use as fuel does not fall within the scope of the Waste Framework Directive.

10. APPROPRIATE ASSESSMENT

Request:
1. Provide updated information regarding appropriate assessment of potential noise and air impacts from the overall development (to include existing and proposed development) and potential in-combination effects with other developments.

Applicants Response:
Regarding the request for updated information on the appropriate assessment of potential noise and air impacts from the overall development, including in-combination effects with other developments, we are currently coordinating with the relevant teams to ensure a comprehensive response. Given the need to align air and noise impact data and assess cumulative effects accurately, additional time is required to complete this process.

We expect to provide the requested information by 11 March.

11. BAT

Request:
1. Attachment 4-7-4 Industrial Cooling Systems BAT Reference Document submitted as part of the application contains track changes. Provide the final version of this document that is to be considered as part of the application.

Applicants Response:
Attachment-4-7-4-Industrial Cooling Systems BAT has been updated to remove track changes and is resubmitted with this response.

Request:
2. It is noted that all the backup generators associated with Building U and Building V, with the exception of the 1 no 2.19 MW_{th}, will use SCR.
    a. What type of medium combustion plant under the Medium Combustion Plant Regulations applies to the backup generators i.e. are they "diesel engines", "other engine", "other medium combustion plant" etc.
    b. Is there a proposal to monitor NH_3 and SO_3 as SCR will be used.
    c. Provide an air impact assessment with regard to NH_3.

Applicants Response:

The type of medium combustion plant under the MCP Regulations[1] at the installation are 'diesel engines'.

No specific monitoring for NH_3 and SO_3 is proposed.

SCR is specifically used for NO_x reduction, and the system continuously monitors NO_x levels in the exhaust gases before and after treatment and adjusts the urea injection accordingly to meet the target levels. This system represents the latest technology and does not require additional monitoring or control for SCR functionality. NH_3 emissions are calculated by the onboard controller, which is programmed to shut down the SCR system in the event of excessive ammonia slip. Given this built-in control mechanism, there is no proposal for continuous NH_3 monitoring.

Under the LCP BAT (BAT5, and BAT15 of the LCP BAT) for the monitoring of sulphur trioxide (SO_3) relates to the emissions to water from flue-gas treatment. The generators fitted with SCR abatement do not have any emissions to water from flue-gas treatment. Therefore, no SO_3 monitoring is required or proposed.

Under the MCP Regulations Schedule 3, Part 1, Article 3 that sets out the monitoring requirements for MCP Measurements shall be required only for: (a) pollutants for which an emission limit value is laid down in this Directive for the plant concerned; (b) CO for all plants. Under Regulation 13(3) of the MCP Regulations new medium combustion plants which do not operate more than 500 operating hours per year, as a rolling average over a period of three years, shall not be required to comply with the emission limit values (ELV) set out in Part 2 of Schedule 2. As the plant do not operate more than 500 operating hours per year, there are no ELV laid down, and therefore, emissions monitoring is only required for CO in relation to the MCP plant at this Installation.

The enclosed response to further information AWN Letter 257501.0094TN02_Air Quality RFI includes the air impact assessment with regard to NH_3 emissions.

Sincerely,

Jonathan Gauntlett

Principal Environmental Consultant

AWN Consulting

[1] European Union (Medium Combustion Plants) Regulations 2017 S.I. No. 595 of 2017