

Attachment-7-1-3-2

Surface Water and Ground Emissions Impact Assessment

Report Prepared For

Amazon Data Services Ireland Limited

Report Prepared By

Conor McKeon,
Environmental Consultant

Our Reference

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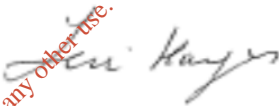
Cork Office
Unit 5, ATS Building,
Carrigaline Industrial Estate,
Carrigaline, Co. Cork.
T: + 353 21 438 7400
F: + 353 21 483 4606

AWN Consulting Limited
Registered in Ireland No. 319812
Directors: F Callaghan, C Dilworth,
T Donnelly, T Hayes, D Kelly, E Porter

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1.0 INTRODUCTION

This report presents the assessment of emissions from the site to water and ground as a result of the operation of the data storage facilities to support the Industrial Emissions Licence Application. Due to the interrelationships between these aspects both thematic have been combined into a single Impact Assessment report, additionally for this same reason the wider impacts of emissions to surface water and foul sewer have also been discussed herein.

This report was completed in a format consistent with the *Environmental Protection Agency's (EPA) Licence Application Form Guidance – Industrial Emissions (IE), Integrated Pollution Control (IPC) and Waste (EPA, 2018)*.

The Application Form Guidance states that: *The expectation is for the 'receiving environment report' to be separate from the 'emissions impact assessment' but they are interrelated. Information may be combined in the 'impact assessment report', where it is logical to do so. In this case the reason for combining the reports should be clearly stated in the submitted report.*

Due to the nature of the localised impacts of the installation and the completion of baseline assessment and separate modelling reports for emissions (air and noise), it is logical to combine the 'receiving environment report' and 'emissions impact assessment' into one report.

The installation will have no proposed process emissions to ground, groundwater, or surface water.

The only planned emission to surface water consists of clean stormwater from building roofs, yards and the road network.

The attenuated stormwater discharges offsite at 4 no. Emission Points (SW1, SW2, SW3, SW4) as shown on Drawing Reference: 21_123D-CSE-00-XX-DR-C-1100 Surface Water Layout Plan. The 4 no. emissions points discharge stormwater to the 1200 mm diameter existing surface water drainage main, located to the south in the public road and runs through the IDA Blanchardstown Business and Technology Park. This stormwater main flows east to the man-made attenuation and detention structure (artificial lake) located in College Business Park, from here it drains westwards to the Ballycoolin Stream, the Ballycoolin Stream flows 1.2 km downstream in a southerly direction and confluences with River Tolka.

Further detail on the storm water network and emissions is set out in Attachment 4-8-1 Operational Report.

Domestic effluent arising from occupation of the Installation will be collected in foul drains within the site and discharged to the existing foul drainage network. The foul network ultimately discharges into a regional pumping station before final treatment and disposal at Ringsend Wastewater Treatment Plant (WWTP) in Dublin.

Further detail on the foul water network and emissions is set out in Attachment 4-8-1 Operational Report.

The main substance of concern in this respect of impacts on ground or surface water bodies is hydrocarbons from car park run-off or in the unlikely event of an overspill from refilling the emergency generator diesel tanks.

2.0 ASSESSMENT OF STORMWATER EMISSIONS

2.1 METHODOLOGY

This assessment of the stormwater emissions looks at the potential impact on the surface water environment. It includes a review of both the known stormwater emissions from the site as well as potential emissions through spills, accidents etc.

The existing surface water environment is described in terms of water quality with reference to environmental quality objectives and standards and any objectives and standards laid down for protected areas. This is followed by a summary and an assessment into the impacts of any existing or proposed emissions on the environment, including environmental media other than those into which the emissions are to be made.

This assessment has been prepared from both a desktop review of existing information, and a site specific investigation. The following is a list of sources of information consulted for use in this section:

- Ordnance Survey Ireland - aerial photographs and historical mapping;
- Environmental Protection Agency (EPA) – website mapping and database information;
- Environmental Protection Agency (EPA) – www.epa.ie on-line mapping and database information;
- Blanchardstown Due Diligence Report ADSIL, CSEA (20 February 2015)

2.2 RECEIVING ENVIRONMENT

The existing surface water environment in terms of water quality with reference to environmental quality objectives and standards and any objectives and standards laid down for protected areas is described in Section 7.3.1 of the Baseline Report (Attachment 4-8-3).

The site is drained by the Ballycoolen River approximately 150 meters to the southwest of the site and the Abbotstown River is approximately 60 meters to the east of the site. The Ballycoolen river flows southwest, the Abbotstown River flows to the southeast, both rivers drain into the River Tolka at Mulhuddart and Abbotstown respectively. The River Tolka lies 1.7km south of the site and discharges to Dublin Bay.

The water quality monitoring stations located on the River Tolka downstream of the site (Abbotstown RS09T011000) obtained a Q rating of 3 which also denotes a “Poor” rating for River Tolka. Based on the most recent water quality information 2013-2018 (EPA, 2019) the stream has been designated as having ‘Poor’ ecological data while the chemical status is reported as ‘Good’ overall. Under the Water Framework Directive, the River Tolka has been designated as ‘at Risk’.

Stormwater is discharged to the 1200 mm diameter existing surface water drainage main, located to the south in the public road. This stormwater main flows east to the man-made attenuation and detention structure (artificial lake) located in College Business Park, from here it drains westwards to the Ballycoolin Stream.



Figure 2.1 Hydrological Environment

2.2.1 Sensitive areas or areas of special interest

An Appropriate Assessment (AA) Screening Report (Attachment 6-3-4) has been prepared by Moore Group and has been submitted with the licence application. Figure 2.2 below presents the site in relation to nearby European sites.

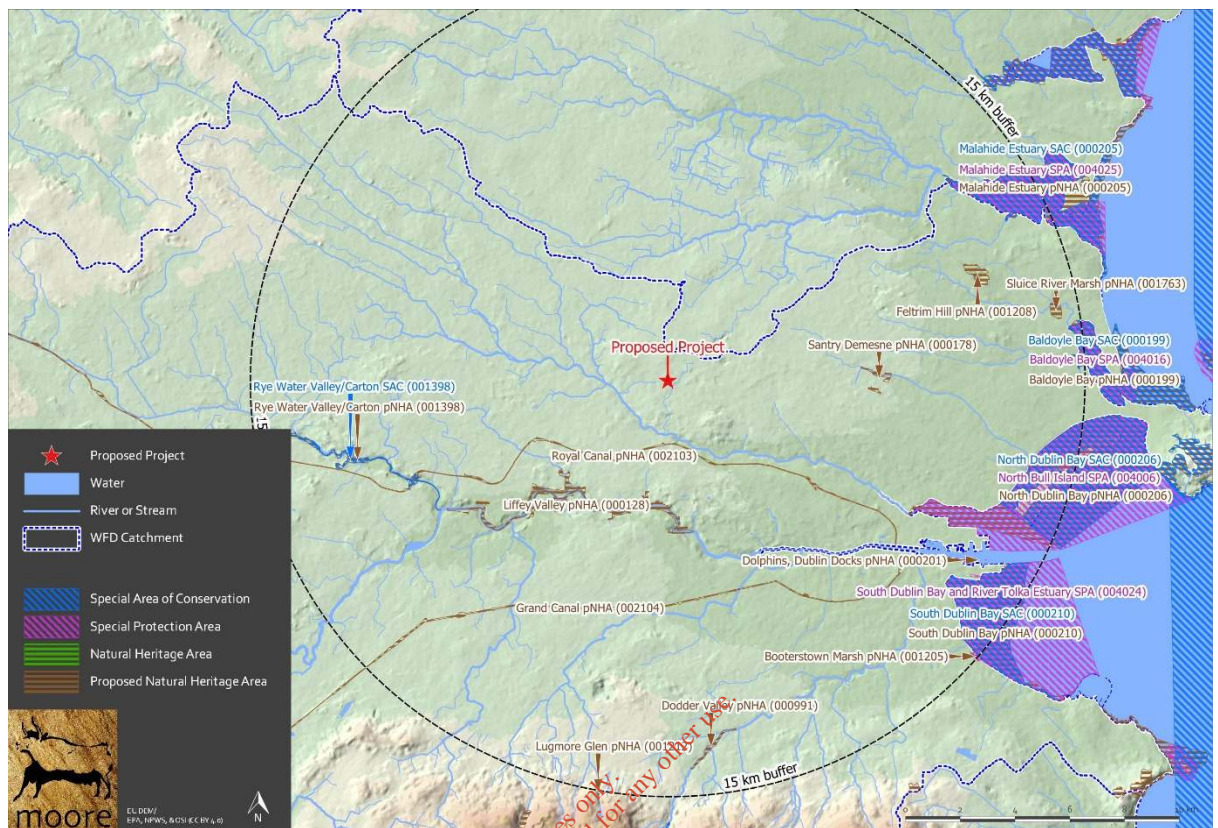


Figure 2.2 Site Location in relation to nearby European sites

This exercise found that the nearest European site to the Project is the Rye Water Valley/Cartron SAC (Site Code 001398), located over 9 km to the southwest. The lands in which the installation is located have no formal designations.

The lands in which the installation is located have no formal designations.

The AA Screening Report (Attachment 6-3-4) concluded that:

There are no predicted effects on any European sites given:

- *The distance between the Project and any European Sites over 9km;*
- *There are no predicted emissions to air, water or the environment during the operational phase that would result in significant effects.*

It has been objectively concluded by Moore Group Environmental Services that:

1. *The Project is not directly connected with, or necessary to the conservation management of the European sites considered in this assessment.*
2. *The Project is unlikely to either directly or indirectly significantly affect the Qualifying interests or Conservation Objectives of the European sites considered in this assessment.*

3. *The Project, alone or in combination with other projects, is not likely to have significant effects on the European sites considered in this assessment in view of their conservation objectives.*
4. *It is possible to conclude that significant effects can be excluded at the screening stage.*

It can be excluded, on the basis of objective information, that the Project, individually or in combination with other plans or projects, will have a significant effect on a European site.

An appropriate assessment is not, therefore, required.

2.3 EMISSIONS TO SURFACE WATER AND ABATEMENT MEASURES

Details of the proposed stormwater drainage are presented in Attachment 4.8.1 (Operational Report). Any accidental emissions of oil, petrol or diesel could cause localised and temporary contamination to stormwater if the emissions enter the water environment unmitigated.

The primary potential impact relates to a failure or accidental spill of diesel fuel which is stored and used on site for the emergency backup generators. Diesel is stored in multiple locations across the site.

- 1 no. bulk diesel fuel tank farm and bund with 4 no. 55,000 liter bulk tanks associated with the emergency generators for Building A and the Building C Extension with and associated fuel unloading bay;
- 1 no. diesel fuel tank farm and bund with 4 no. 55,000 liter bulk tanks associated with the emergency generators for Building B with and associated fuel unloading bay;
- 1 no. diesel fuel top up tank and bund with 1 no. 40,000 litre bulk top up tank associated with the emergency generators for Building D with associated unloading bay
- The 22 no. emergency backup generators at Buildings A are accompanied by a double skinned day tank (2,500 litres each)
- The 17 no. emergency backup generators at Buildings B are accompanied by a double skinned day tank (3,500 litres each)
- The 18 no. emergency backup generators at Buildings C utilise 17 no. 10,000 litre upright double skinned tanks; and 1 no. 15,000 litre upright double skinned tank
- The 4 no. emergency backup generators at the Buildings C extension are accompanied by a double skinned day tank (4,000 litres each)
- The 9 no. emergency backup generators at the Buildings D are accompanied by a double skinned day tank (1,000 litres each) for immediate supply to the generator, and a double skinned belly tank (16,000 litres each)
- The 2-no. diesel powered fire pumps have 1m³ 'day tanks'.
- Diesel fuel pipelines above ground are Carbon Steel, and below ground are Close Fit PLX (dual-contained pipe system).

There is a total diesel storage capacity on site of 950,500 litres, 950.5 m³ or approximately 807.9 tonnes (assumed density of 0.85 l/kg). The tanks on site are filled to 80% capacity under normal conditions; therefore the total diesel storage on site is 760,400 litres, 760.4 m³ or approximately 646.3 tonnes (assumed density of 0.85 l/kg).

In order to minimise any impact on surface water environment from material spillages, the fuel storage tanks are located above ground there will be full containment and all containers are designed to be suitable for the chemicals stored within and in accordance with the EPA's guidelines for the storage and transfer of materials for scheduled activities (EPA, 2004). The design of all bunds will conform to standard bunding specifications - BS EN 1992-3:2006 *Eurocode 2 - Design of concrete structures - Part 3: Liquid retaining and containment structures*. The Operational Report (Attachment 4-8-1) outlines the diesel fuel storage systems in detail.

A standard operating procedure for fuel unloading is in place at the site to reduce the risk of spills and an on-site Emergency Response Plan (ERP) is in place, the site maintains spill kits at all storage areas,

All site stormwater is drained via Class 1 hydrocarbon interceptors attenuation systems following which the stormwater will discharge via a hydrobrake (to control flow) to the storm sewer.

The hydrocarbon interceptors are equipped with online hydrocarbon detection and alarm system that connect to the BMS/EPMS critical alarm. These measures will prevent discharge of oils/fuels which may potentially be present in stormwater run-off from heavily trafficked areas, delivery zones, dock levellers and turning areas and ensure that run-off discharges at greenfield run-off rates as current.

Trapped gullies will be utilised in all stormwater systems to the road, turning bays and car park infrastructure so that sediment pollution to the local watercourses is minimised.

The discharge from the stormwater attenuation systems will be controlled to greenfield runoff rates.

In accordance with BAT, clean stormwater will be kept separate from contaminated wastewater and there will be no inherent risk of cross-contamination.

The only chemical hazardous to the environment that is stored onsite is diesel. Diesel will be prevented from entering the attenuation system and leaving the site by the hydrocarbon interceptors. The interceptors have level alarms that will be triggered if the interceptor is overloaded or malfunctions.

A penstock will be installed on the outfall of the stormwater attenuation system(s) that will be closed to prevent any overflow of diesel into the attenuation system escaping into the storm sewer.

Due to the nature of the run-off (stormwater from buildings and roads only) and the inclusion of hydrocarbon interceptors, the proposed discharge is unlikely to contain more than trace hydrocarbons and metals. Therefore, it is considered that the emission of stormwater will not contain significant quantities of Principal Polluting Substances *Environmental Protection Agency (Licensing) (Amendment) Regulations 2004* or Priority Substances or Priority Hazardous Substances of the *EC Environmental Objectives (Surface Waters) Regulations 2009, S.I. No. 272 of 2009*.

In the event of a fire at the facility, firewater will be contained to prevent contamination of receiving waters. The onsite attenuation basin will be used for retention of potentially contaminated firewater in the event of a fire or accident and water subsequently treated on site or disposed of by a licenced contractor. The total available capacity afforded by

the basin is more than sufficient to accommodate the maximum volume of contaminated fire water anticipated in the fighting of a fire at the installation.

2.4 SURFACE WATER IMPACT ASSESSMENT

The installation will not have a noticeable impact on the surface water of the receiving environment. There is no direct discharge to surface water; there is an indirect discharge of attenuated stormwater which is discharged to the 1200 mm diameter existing surface water drainage main, located to the south in the public road and runs through the IDA Blanchardstown Business and Technology Park. This stormwater main flows east to the man-made attenuation and detention structure (artificial lake) located in College Business Park, from here it drains westwards to the Ballycoolin Stream, the Ballycoolin Stream flows 1.2 km downstream in a southerly direction and confluences with River Tolka.

There is a negligible risk of Principle Pollution Substances, Priority Substances or Priority Hazardous Substances (main polluting substances (as defined in the Schedule of EPA (Licensing)(Amendment) Regulations 2004, S.I. No. 394 of 2004) being discharged from the installation above the limits outlined in the Surface Waters Regulations (S.I. No. 272 of 2009) via the stormwater network due to the stringent controls and procedures in place to prevent and minimise spills and the presence of interceptors within the stormwater infrastructure. Mitigation measures in place to prevent and minimise spills have been implemented as shown in Attachment 4-8-1.

Based on this assessment, with incorporating mitigation measures, the installation will not have a significant impact on the quality or water body status of the receiving surface water bodies. There is no relevant hydrological connectivity or biological connectivity to other European sites located within the zone of influence of the Project.

3.0 ASSESSMENT OF GROUND AND/OR GROUNDWATER EMISSIONS

3.1 METHODOLOGY

This section addresses the potential for emissions to ground/groundwater. The scope and detail of this assessment is consistent with the extent and type of emissions to ground.

The existing receiving environment is described in terms of the existing groundwater quality. The potential impacts to aquifers, soils, sub-soils and rock environment of the facility is summarised, including any impact on environmental media other than those into which the emissions are to be made. The assessment will be made against emission limit values where relevant.

This assessment has been prepared from both a desktop review of existing information, and from site-specific investigation information. The following is a list of sources of information consulted for use in this

- Geological Survey of Ireland (GSI) - on-line mapping, Geo-hazard Database, Geological Heritage Sites & Sites of Special Scientific Interest, Bedrock Memoirs and 1:100,000 mapping;
- Ordnance Survey Ireland - aerial photographs and historical mapping;
- Environmental Protection Agency (EPA) – website mapping and database information;
- National Parks and Wildlife Services (NPWS) – Protected Site Register;

- Blanchardstown Due Diligence Report ADSIL, CSEA (20 February 2015)
- Environmental Impact Assessment Screening Report Data Storage Facility at the Former Kingston Technology Building, IDA Blanchardstown Business and Technology Park, Ballycoolin Road and Snugborough Road, Blanchardstown, Dublin 15. AWN Consulting (5th June 2018)
- IDA Industrial Estate Snugborough Road Dublin, Proposed Data Centre, IGSL Report No. 20963, Geotechnical Report July 2018

3.2 RECEIVING ENVIRONMENT

The receiving environment with regards to ground/ground water is set out in Section 7.2 of the Baseline Report (Attachment 4.8.3).

As outlined in the Baseline Report (Section 7.2 and Section 9.0) there is no known ground and/or groundwater contamination, historical or current, on or under the site.

3.3 EMISSIONS TO GROUND AND ABATEMENT MEASURES

The installation has no proposed direct emissions to ground or ground water. The only potential impact of the installation to ground and ground water would be from indirect emissions from fuel and other accidental spills that may occur.

There is a potential for leaks and spillages from the fuel tank to occur on site. In addition to this there is a potential for leaks and spillages from vehicles along access roads, loading bays and in parking areas. Any accidental emissions of oil, petrol or diesel could cause contamination if the emissions enter the water environment unmitigated.

The primary potential impact relates to a failure or accidental spill of diesel fuel which is stored and used on site for the emergency backup generators. Diesel is stored in multiple locations across the site.

- 1 no. bulk diesel fuel tank farm and bund with 4 no. 55,000 liter bulk tanks associated with the emergency generators for Building A and the Building C Extension with and associated fuel unloading bay;
- 1 no. diesel fuel tank farm and bund with 4 no. 55,000 liter bulk tanks associated with the emergency generators for Building B with and associated fuel unloading bay;
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- The 2-no. diesel powered fire pumps have 1m³ 'day tanks'.
- Diesel fuel pipelines above ground are Carbon Steel, and below ground are Close Fit PLX (dual-contained pipe system).

There is a total diesel storage capacity on site of 950,500 litres, 950.5 m³ or approximately 807.9 tonnes (assumed density of 0.85 l/kg). The tanks on site are filled to 80% capacity under normal conditions; therefore the total diesel storage on site is 760,400 litres, 760.4 m³ or approximately 646.3 tonnes (assumed density of 0.85 l/kg).

In order to minimise any impact on the underlying subsurface strata from material spillages, the fuel storage tanks are located above ground there will be full containment and all containers are designed to be suitable for the chemicals stored within and in accordance with the EPA's guidelines for the storage and transfer of materials for scheduled activities (EPA, 2004). The design of all bunds will conform to standard bunding specifications - BS EN 1992-3:2006 *Eurocode 2 - Design of concrete structures - Part 3: Liquid retaining and containment structures*. The Operational Report (Attachment 4.8.1) outlines the diesel fuel storage systems in detail.

A standard operating procedure for fuel unloading is in place at the site to reduce the risk of spills and an on-site Emergency Response Plan (ERP) is in place, the site maintains spill kits at all storage areas.

There are green areas and areas of permeable paving (car parks) on site, however, potentially contaminating materials i.e., oil or diesel are not contained or stored on these areas. The car parking bays of permeable paving materials allows rainwater to percolate into the substrata and recharge the groundwater. The risk of a hydrocarbon spill within these areas is low, and permeable paving are a proven source control technique in handling surface water run off small amounts of hydrocarbons are biodegraded in the paving system.

The control measures in place for the storage and transfer diesel fuel any accidental emissions of diesel is more likely to impact on surface water network. Further information on mitigation measures with respect to surface water pollution controls are discussed in Section 2.4 above.

3.4 IMPACT ASSESSMENT

As there is no direct discharge, and no direct pathway to groundwater from this site, there is no likely potential impact the soil environment or underlying groundwater body.

There are no proposed process emissions to ground from the installation. there are no future likely exceedances of the thresholds outlined in the European Communities Environmental Objectives (Groundwater) Regulations 2010 (S.I. No. 9 of 2010).

4.0 REFERENCES

Environmental Protection Agency (2004) IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities.

Environmental Protection Agency (EPA). (2004) IPC Guidance Note on Storage and Transfer of Materials for Scheduled Activities.

Environmental Protection Agency (EPA). *Envision* water quality monitoring data, Available at: <http://gis.epa.ie/Envision/>. (Accessed: June 2021).

Geological Survey of Ireland. Available at: <http://www.gsi.ie> (Accessed: June 2021).

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