

Attachment-7-1-3-2

Surface Water and Ground Emissions Impact Assessment

Report Prepared For

Amazon Data Services Ireland Limited

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Our Reference

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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.

There are no process emissions to surface water or to the storm sewer. The only planned emission to surface water consists of clean stormwater from building roofs, yards and the road network.

The attenuated stormwater drains at 4 no. Emission Points (SW1, SW2, SW3, SW4) The site drainage is shown on Drawing A093-CSC-XX-XX-DR-C-1101 included with this application. Attenuation Basin 1 discharges at Emission Point SW1 into the existing 450mm storm sewer to the west of the subject lands. Attenuation Basin 2, Attenuation Basin 3, and Attenuation Basin 4 discharge at Emission points SW2, SW3, SW4 respectively, into Baldonnell Stream located to the north of the site.

The existing 450mm storm sewer and the Baldonnell Stream outfalls into the Griffeen River; and ultimately connect to the River Liffey and Dublin Bay.

Domestic Sewerage and cooling water discharge from industrial cooling systems will be collected in a new gravity foul sewer and discharge into a single outfall to the main IW owned foul sewer to the south of the site. The local foul drainage network ultimately discharges to Ringsend Wastewater Treatment Plant for offsite treatment.

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;
- Environmental Impact Assessment Report Data Centre Development Grange Castle South Business Park; Marston Planning (April, 2020)

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 Baldonnell Stream runs roughly east to west through the northern part of the site. Based on the most recent water quality information 2010-2015 (EPA, 2019) the stream has been designated as having 'Good' chemical and fish status with 'Moderate' status overall. The Baldonnell Stream and Griffeen River which ultimately outfalls into the River Liffey. Under the Water Framework Directive, the River Liffey has been designated as 'at Risk'.

To the south of the subject lands there is two stormwater sewers, 450mm in diameter. They drain from east to west, then combine and turn north ultimately discharging into the Griffeen River.



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 Scott Cawley Ltd and has been submitted as part of the planning application for the site. Figure 2.2 below presents the site in relation to nearby European sites.

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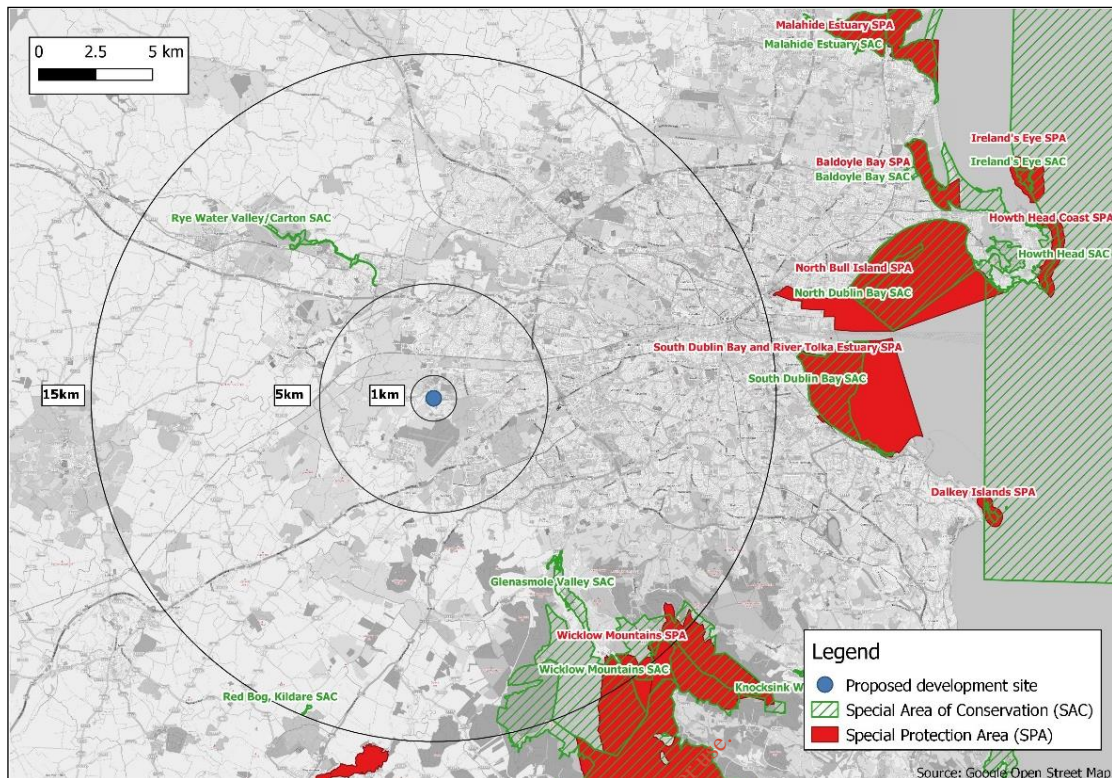


Figure 2.2 Site Location in relation to nearby European sites

The lands in which the installation is located have no formal designations. The nearest European site to the Proposed Development is the Rye Water Valley / Carton SAC; c. 5.2km north-west. The Baldonnell Stream flows east-west through the Proposed Development site and acts as a pathway to European sites downstream in Dublin Bay c. 24km hydrological distance downstream to the east of the Proposed Development.

The AA Screening Report concluded that:

1. The project, alone or in combination with other projects, is not likely to have significant effects on the European sites considered in this assessment.
2. It is possible to rule out that the Project is likely to have significant impacts on any European sites considered in the assessment.
3. It is possible to conclude that there would be no significant effects, no potentially significant effects and no uncertain effects on any relevant European sites if the Project were to proceed.

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 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.

- Bulk diesel is supplied to generators from a fill (top-up) tank of 40 m³ located adjacent to each data centre (i.e., 3 no. tanks of 40 m³ will be required).

- The 70 no. 6.49 MWth emergency back-up generator units have 16.4 m³ 'belly tanks', these have a maximum fill capacity of 16 m³ (i.e., 70 no. tanks of 16 m³ will be required). Building A and Building C will each have 26 no. and Building B will have 18 no. generators (total of 70 no Diesel Generators).
- The 3 no. 3.03 MWth diesel powered emergency back-up generators have 1m³ 'day tanks'. 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).

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 will be drained via Class 1 by-pass interceptors to the appropriately sized attenuation ponds following which the stormwater will discharge via a hydrobrake (to control flow) to the storm sewer.

The 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 attenuation ponds will be controlled to greenfield runoff rates. There is no relevant limit for flow; however, the proposed rates of discharge have been designed to have minimal impact on the hydrology of the surface water network.

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 pond 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 pond(s) that will be closed to prevent any overflow of diesel into the pond 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. The total available capacity afforded by the pond 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 at the allowable greenfield run-off rate of 2.0 l/s/ha. to the Baldonnel Stream. A 'Hydrobrake' flow control system is used to achieve the required discharge rate.

There is a low 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 a site-specific investigation. 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;

- Teagasc soil and subsoil database;
- 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;
- Dublin County Council - illegal landfill information; and
- AWN. (2018) Environmental Impact Assessment Report for a Proposed Data Storage Facility Development Clonsaugh Business and Technology Park, Dublin 17.

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.

- Bulk diesel is supplied to generators from a fill (top-up) tank of 40 m³ located adjacent to each data centre (i.e., 3 no. tanks of 40 m³ will be required).
- The 70 no. 6.49 MWth emergency back-up generator units have 16.4 m³ 'belly tanks', these have a maximum fill capacity of 16 m³ (i.e., 70 no. tanks of 16 m³ will be required). Building A and Building C will each have 26 no. and Building B will have 18 no. generators (total of 70 no Diesel Generators).
- The 3 no. 3.03 MWth diesel powered emergency back-up generators have 1m³ 'day tanks'. 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).

The Operational Report (Attachment 4.8.1) outlines the diesel fuel storage systems in detail.

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.

As there are no discharges to ground planned and drainage has been entirely replaced, 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.

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Scott Cawley Ltd. (2020). Appropriate Assessment Screening Report.