

Attachment-7-1-3-2

Surface Water and Ground Emissions Impact Assessment

Report Prepared For

Amazon Data Services Ireland Limited

Report Prepared By

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Our Reference

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CONTENTS		Page
1.0	INTRODUCTION	4
2.0	Assessment of Stormwater Emissions	5
2.1	Methodology	5
2.2	Receiving Environment	5
2.3	Emissions to Surface Water and Abatement Measures	8
2.4	Surface Water Impact Assessment	10
3.0	Assessment of Ground ANd/or Groundwater Emissions	11
3.1	Methodology	11
3.2	Receiving Environment	11
3.3	Emissions to Ground and Abatement Measures	12
3.4	Impact Assessment	13
4.0	REFERENCES	13

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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 a combined single impact assessment report has been prepared. 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 has no process emissions to ground, groundwater, or surface water.

The emission to storm sewer consists of stormwater runoff from building roofs, yards and the road network. Residual cooling water (clean water applied for cooling) is discharged from the cooling systems to the storm sewer. There are no additives to the water during the cooling process.

The stormwater from the site discharges at the 1 no emission point (SW1) to a surface water pipe along the eastern boundary of the site which ties-in to current IDA stormwater sewer via a 300 mm connection. The stormwater passes through hydrocarbon interceptors to ensure that the quality of the stormwater discharge is controlled. This network is shown on Drawing 21_123G-CSE-00-XX-DR-C-1100 Surface Water Layout Plan. The IDA Business and Technology Park storm sewer discharges into the wider public storm sewer and into River Boyne at Drogheda.

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 Site, including from the transformer compound and control building is discharged to the public foul sewer (at Emission Point SE1). Refer to Drawing 21_123G-CSE-00-XX-DR-C-1200 for the foul drainage layout. The foul network ultimately discharges into a regional pumping station before final treatment and disposal at Drogheda Wastewater Treatment Plant (WWTP).

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 respect of impacts on ground or surface water bodies is hydrocarbons from car park run-off or 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 examines 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;
- IGSL Site Investigation, Donore Road Drogheda, Industrial Development Authority, Clifton Scannell Emerson Associates, July 2000;
- Planning Application to Meath County Council Environmental Impact Assessment Report, Data Storage Facility Development Drogheda IDA Business and technology Park, Donore Road, Drogheda, Co. Meath, AWN Consulting December 2019;
- Drogheda Due Diligence Report, ADSIL, 08th March 2019 (ref:18_186);
- Stage 1 Flood Risk Assessment, Substation Facility Drogheda IDA Business and Technology Park, Donore Road, Drogheda, Co. Meath, AWN Consulting, 18th December 2019.

2.2 RECEIVING ENVIRONMENT

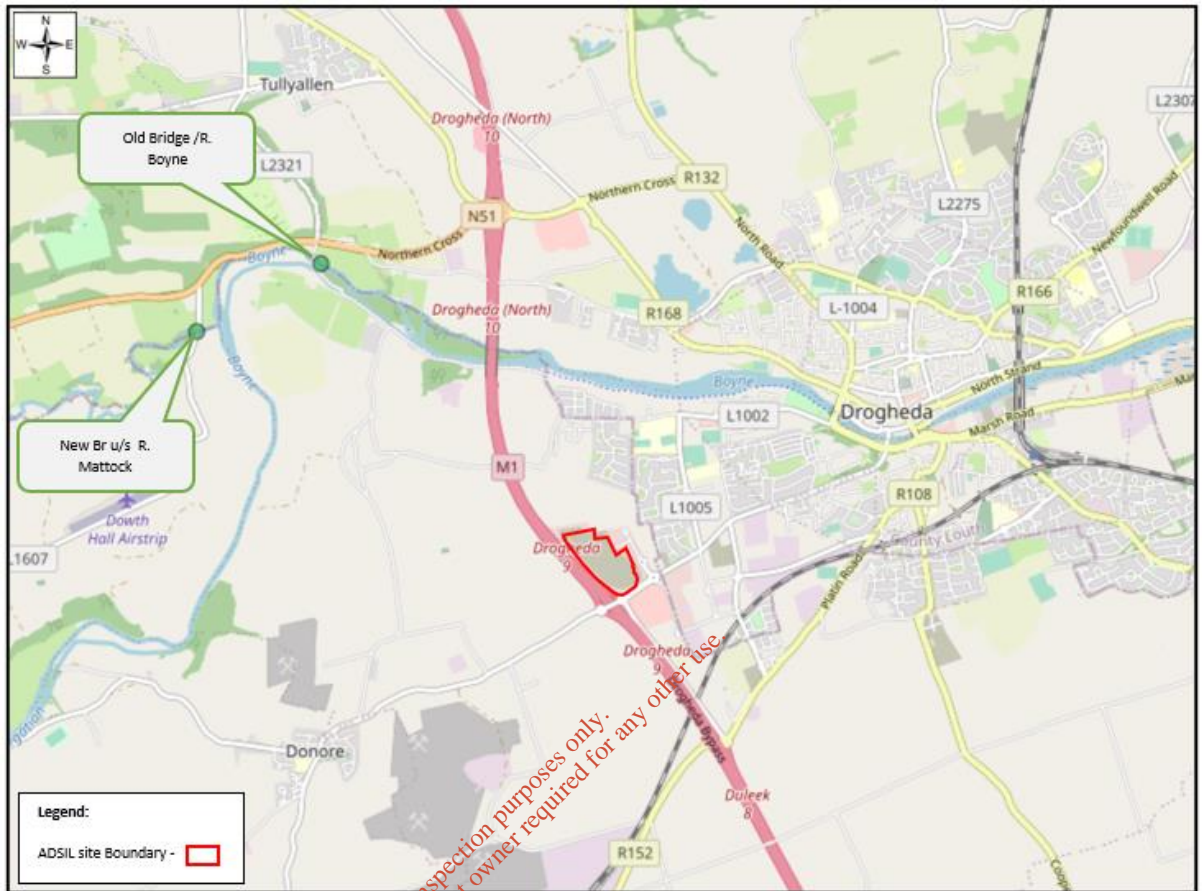
The existing surface water environment in terms of water quality with reference to environmental quality objectives and standards and any objectives and standards laid down for protected areas is described in Section 7.3 of the Baseline Report (Attachment 4-8-3).

The Site is within the catchment of the River Boyne which runs approximately 1km north of the site flowing in an easterly direction towards the Irish Sea. The Sheephouse Stream and Stagrennan Stream to the northwest and south east of the site respectively discharge to the River Boyne, but have no connectivity with the ADSIL site.

There are no streams on the site itself or along its boundaries. Stormwater run-off is collected and discharged to the public storm sewer within the IDA Business and Technology Park which eventually discharges to the River Boyne via the public sewer network at Drogheda.

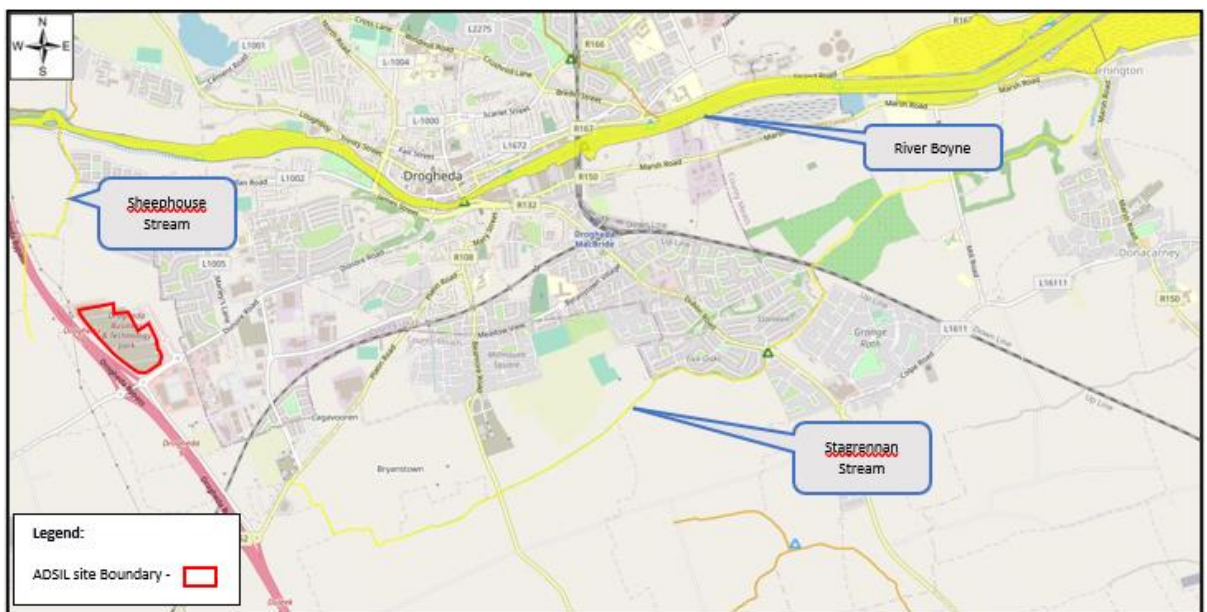
The Old Bridge (RS07B042200) water quality monitoring station located upstream of the Boyne Estuary (Insert 2.1) obtained a Q4- Good WFD status in 2020 and the water

monitoring station at the River Mattock (Insert 2.1) discharging into the Boyne upstream of (RS07B042200) obtained a Q4- Good WFD status in 2020.



Insert 2.1 Hydrological Environment, illustrating the River Boyne and the Boyne Estuary flowing in a easterly direction.

The water quality status of the Sheephouse Stream, the Stagrennan Stream and the River Boyne Estuary is classified by the EPA as moderate as illustrated in Insert 2.2.



Insert 2.2 Hydrological Environment, illustrating the River Boyne (Boyne Estuary) flowing in a easterly direction, the Sheephouse Stream and the Stagrennan Stream classified as having moderate water quality status .

In accordance with the WFD, each river catchment within the former ERBD was assessed by the EPA and a water management plan detailing the programme of measures was put in place for each. Currently, the EPA classifies the Sheephouse Stream waterbody to the northwest and the Stagrennan stream to the southeast as being under review most likely due to a lack of information being currently available to assign a risk rating. The Boyne Estuary (transitional Water bodies) to the north currently has a rating of 1a, ‘At risk of not achieving good status’. Insert 2.3 presents the river waterbody risk EPA map.



Insert 2.3 Hydrological Environment, illustrating the River Boyne (Boyne Estuary) flowing in a easterly direction and classified as ‘at risk of not achieving good status’.

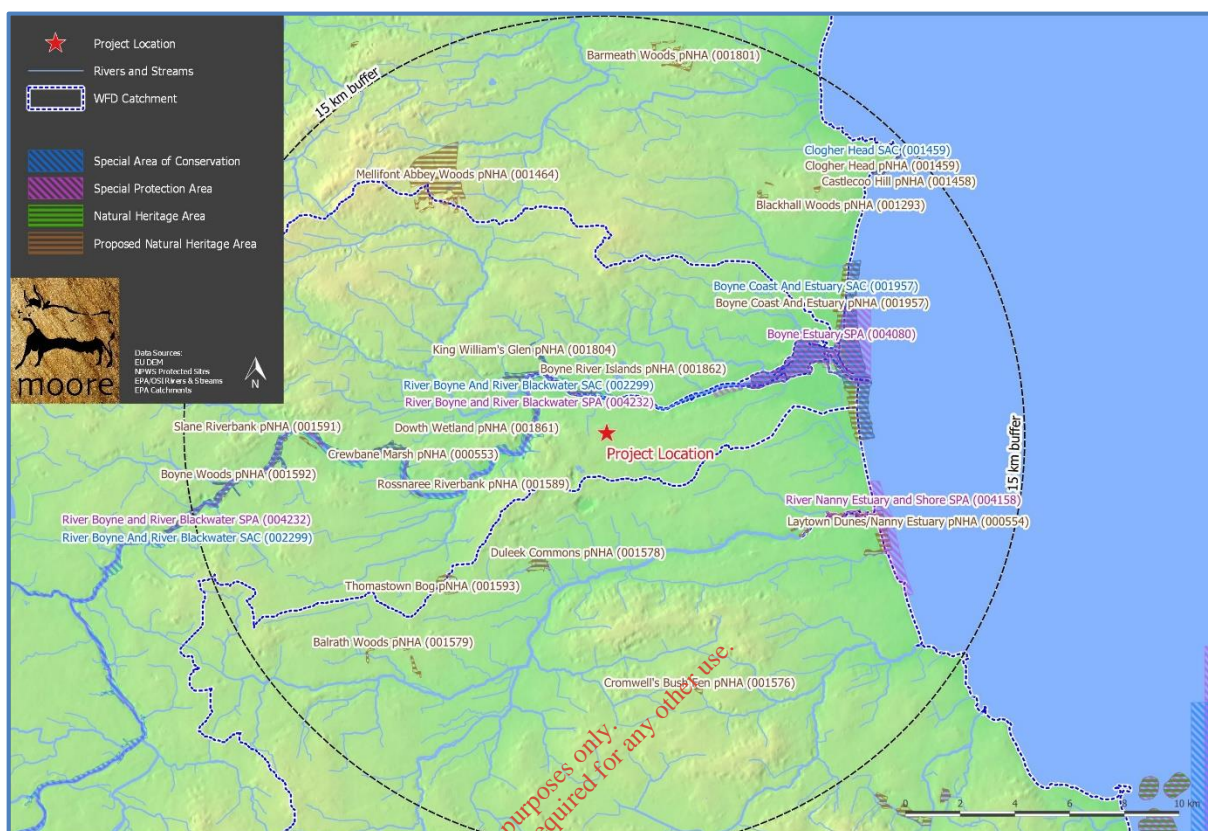
2.2.1 Sensitive areas or areas of special interest

An Appropriate Assessment (AA) Screening Report (Attachment-6-3-4-AA Screening-Planning-Mar-2020) has been prepared by Moore Group and has been submitted with the licence application. Figure 2.4 below presents the Site in relation to nearby European sites.

The nearest European sites to the Development are associated with the Boyne River and include the River Boyne And River Blackwater SAC (Site Code 002299), which is located approximately 1 km to the north, and the River Boyne and River Blackwater SPA (Site Code 004232), which is located approximately 1.28 km to the north.

Downstream the waters of the River Boyne enter the River Boyne Estuary with its European sites, the Boyne Coast and Estuary SAC (Site Code 001957) and the Boyne Estuary SPA (Site Code 004080), which are located respectively approximately 5.15 km and 3.95 km to the north east of the Development.

There is no connectivity to the River Boyne or to any other European sites within or outside the guideline 15 km zone of potential impact.



Insert 2.4 Site Location, Showing European sites and NHA's/pNHS'a in the vicinity of the Project

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

The AA Screening Report concluded that:

1. The Site is not directly connected with, or necessary to the conservation management of the European sites considered in the 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.
5. 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.

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.

- Diesel is supplied to the Building A generators from 1 no. 40,000L top up tank located in the tank farm facility to the north of Building A.
- Each of the 26 no. 6.82 MW_{th} emergency backup generators at Buildings A are accompanied by a double skinned day tank (1,000 litres each), and belly tank (18,000 litres each).
- The 1 no. 2.19 MW_{th} emergency backup generator has a double skinned day tank (1,000 litres) or immediate supply to the generator.
- The 2-no. diesel powered fire sprinkler pumps at Building A which have 3 no. day tanks (1,000 litres each).
- 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 538,000 litres, 538 m³ or approximately 462 tonnes (assumed density of 0.86 l/kg). The tanks on site are filled to 80% capacity under normal conditions; therefore, the total diesel stored on site is 430,400 litres, 430 m³ or approximately 370 tonnes (assumed density of 0.86 l/kg).

In order to minimise any impact on surface water environment from material spillages, the fuel storage tanks are located above ground and will be fully contained. 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. An on-site Emergency Response Plan (ERP) is in place. The Site maintains spill kits at all storage areas.

Rainwater runoff from impermeable areas of the Site is collected via the onsite stormwater drainage network in accordance with the MCC for Planning Ref. LB191735. This network will convey the stormwater via Hydrocarbon Interceptors to one of 2 no. stormwater system shown on Drawing 21_123G-CSE-00-XX-DR-C-1100 Surface Water Layout Plan. The stormwater discharges offsite at 1 no. Emission Point (SW1). The fuel unloading bay contains drainage channels that direct stormwater to network via hydrocarbon interceptor.

There is 1 no. detention basin on site (6,144 m³ capacity) is located to the east. There is a stormwater flow control device located downstream of the attenuation system to reduce to the maximum permissible flow rate.

The surface water attenuation system will outfall at the 1 no emission point (SW1) to a surface water installed along the eastern boundary of the site which ties-in to the current IDA stormwater drainage network via a 300 mm connection.

Prior to the site stormwater network entering the detention basin, the stormwater passes through hydrocarbon interceptors, and hydrodynamic solid separator to ensure that the quality of the stormwater discharge is controlled.

The surface water attenuation system outfalls at the 1 no emission point (SW1) to a surface water pipe along the eastern boundary of the site which ties-in to current IDA stormwater sewer via a 300 mm connection.

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

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 stored in bulk onsite, that is hazardous to the environment, is diesel. Diesel will be prevented from entering the attenuation systems by the hydrocarbon interceptors. The interceptors have level alarms that will be triggered if the interceptor is overloaded or malfunctions.

Due to the nature of the run-off, (stormwater from buildings and roads only) and the inclusion of hydrocarbon interceptors at key locations, 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*.

It is intended to install a penstock on the outfall prior to the discharge into the stormwater main (Emission Point SW1). Once installed, the penstock will allow the outfall of the storm cell(s) and drains to be closed off to inhibit the outflow in the event of a spill or a fire.

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

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 connectivity to the Sheephouse Stream and no direct discharge from the site to the River Boyne. There is an indirect discharge of stormwater via the public stormwater drain, which subsequently discharges to the River Boyne at Drogheda. A flow control system on the storms cell is in place to achieve the required discharge rate to the stormwater drain.

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 and amendments) via the stormwater network due to the controls and procedures in place to prevent and minimise spills and the presence of interceptors within the stormwater infrastructure at key locations. Mitigation measures in place to prevent and minimise spills have been implemented as outlined 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 investigations. The following is a list of sources of information consulted for use in this report:

- 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;
- IGSL Site Investigation, Donore Road Drogheda, Industrial Development Authority, Clifton Scannell Emerson Associates, July 2000;
- Planning Application to Meath County Council Environmental Impact Assessment Report, Data Storage Facility Development Drogheda IDA Business and technology Park, Donore Road, Drogheda, Co. Meath, AWN Consulting December 2019;
- Drogheda Due Diligence Report, ADSIL, 08th March 2019 (ref:18_186);
- Stage 1 Flood Risk Assessment, Substation Facility Drogheda IDA Business and Technology Park, Donore Road, Drogheda, Co. Meath, AWN Consulting, 18th December 2019.

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). The site is underlain by a regionally important bedrock aquifer which has low vulnerability, with bedrock greater than 10 meters below ground level. There is a proven thickness of up 12.6 meter of low permeability overburden providing protection to the aquifer.

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.

- Diesel is supplied to the Building A generators from 1 no. 40,000L top up tank located in the tank farm facility to the north of Building A.
- Each of the 26 no. 6.82 MW_{th} emergency backup generators at Buildings A are accompanied by a double skinned day tank (1,000 litres each), and belly tank (18,000 litres each).
- The 1 no. 2.19 MW_{th} emergency backup generator has a double skinned day tank (1,000 litres) or immediate supply to the generator.
- The 2-no. diesel powered fire sprinkler pumps at Building A which have 3 no. day tanks (1,000 litres each).
- 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 538,000 litres, 538 m³ or approximately 462 tonnes (assumed density of 0.86 l/kg). The tanks on site are filled to 80% capacity under normal conditions; therefore, the total diesel stored on site is 430,400 litres, 430 m³ or approximately 370 tonnes (assumed density of 0.86 l/kg).

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 on site, however, potentially contaminating materials i.e., oil or diesel are not contained or stored on these areas. The risk of a hydrocarbon spill within these areas is low.

There are robust control measures in place for the storage and transfer of diesel fuel. Any accidental emissions of diesel is more likely to impact on the surface water

network. Further information on mitigation measures with respect to surface water pollution controls are is 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 planned discharges to ground of processed or contaminated waters, 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 Feb 2022).

Geological Survey of Ireland. Available at: <http://www.gsi.ie> (Accessed: Feb 2022).

National Parks and Wildlife Services (NPWS) – Protected Site Register

IGSL Site Investigation, Donore Road Drogheda, Industrial Development Authority, Clifton Scannell Emerson Associates, July 2000;

Planning Application to Meath County Council Environmental Impact Assessment Report, Data Storage Facility Development Drogheda IDA Business and technology Park, Donore Road, Drogheda, Co. Meath, AWN Consulting December 2019;

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