HERBATA DATA CENTRE, NAAS

EIAR
VOLUME I MAIN TEXT – CHAPTER 13 MATERIAL ASSETS – BUILT SERVICES

NI2615
01
June 2024

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13 MATERIAL ASSETS - BUILT SERVICES

13.1 Introduction

This chapter of the EIAR presents findings of the assessment on existing material assets and built services which could be impacted by the Project. The assessment of potential impacts on material assets focuses on resources that are valued and are intrinsic to a place – these may be of either human or natural origin, and the value may arise for either economic or cultural reasons. In this context, this assessment focuses on buildings, built services and existing infrastructure within and directly adjoining the indicative study area.

The matters assessed within this section focus on the environmental effects on utilities and infrastructure.

13.2 Methodology

The baseline environment is defined as the existing environment against which future changes can be measured. This chapter has been prepared having regard to the following guidelines;

- Guidelines for planning Authorities and An Bord Pleanala on carrying out Environmental Impact Assessment (Department of Housing, Planning & Local Government, 2018)
- Environmental Impact Assessment of Projects: Guidance on preparation of the Environmental Impact Assessment Report (European Commission, 2017)
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports – Draft (EPA, 2022)

13.2.1 Desktop Study

A desktop study to identify baseline conditions has been undertaken to establish the existing provision of services and utilities in the areas. The following sources of information were used in the completion of this assessment:

- Kildare County Council (Drainage and Water Supply Mapping)
- Uisce Éireann Water and Wastewater Utility Plans
- Submission of a Pre-Connection Enquiry to Uisce Éireann
- Gas Networks Ireland (GNI Utility Plans)
- ESB Utility Plans
- EIR Utility Plans
- Virgin Media Utility Plans
- J&L Topographical Survey Drawings
- Metroscan Ground Penetrating Radar (GPR) Survey Drawings.

13.2.2 Consultation

As part of the planning process, the Design Team has attended a number of consultations with authority bodies to confirm and develop the aspects of the design. The following are a list of the formal consultations attended by the Design Team:

- Kildare County Council: 3 No. formal pre planning meetings;
- Uisce Éireann: 1 No. consultation meeting.

13.3 Characteristics of the Project

13.3.1 Description of Site

The Project site is 38.64 ha in extent and is located in the townlands of Halverstown and Jigginstown, on the western side of the M7 motorway, positioned between Junctions 9a and 10, c.2.5km west of Naas, County Kildare. The subject site currently consists of agricultural lands, residential houses and agricultural buildings to the west of the M7 and Naas town.

There are 3 no. existing houses and 5 no. farm buildings locate on the site that are to be demolished as part of the proposed works. To the north and south of the site, the lands are mainly used for commercial/industrial purposes (M7 Business Park & Osberstown Business Park) and agricultural uses. A 2-storey house and farm buildings are located approx. 200m to the west of the site, whilst some bungalow and 2 storey houses are located approx. 250m to the south of the site. There is a bungalow immediately to the north of the site, across the R409.

The site is bound to the north by the R409 road, to the east by the M7 Motorway and to the south by the M7 Business Park, with agricultural land to the west.

13.4 Baseline

This section below describes the baseline environment under the following headings:

- Surface Water
- Foul Drainage
- Water Supply
- Gas Networks Ireland Services
- ESB Utility Services
- EIR Utility Services
- Virgin Media Utility Services

13.4.1 Surface Water Drainage

The existing site is not served by any public or formal surface water drainage system, as is illustrated in Figure 13.1 below which is an extract from the available Kildare County Council / Uisce Éireann public drainage mapping.

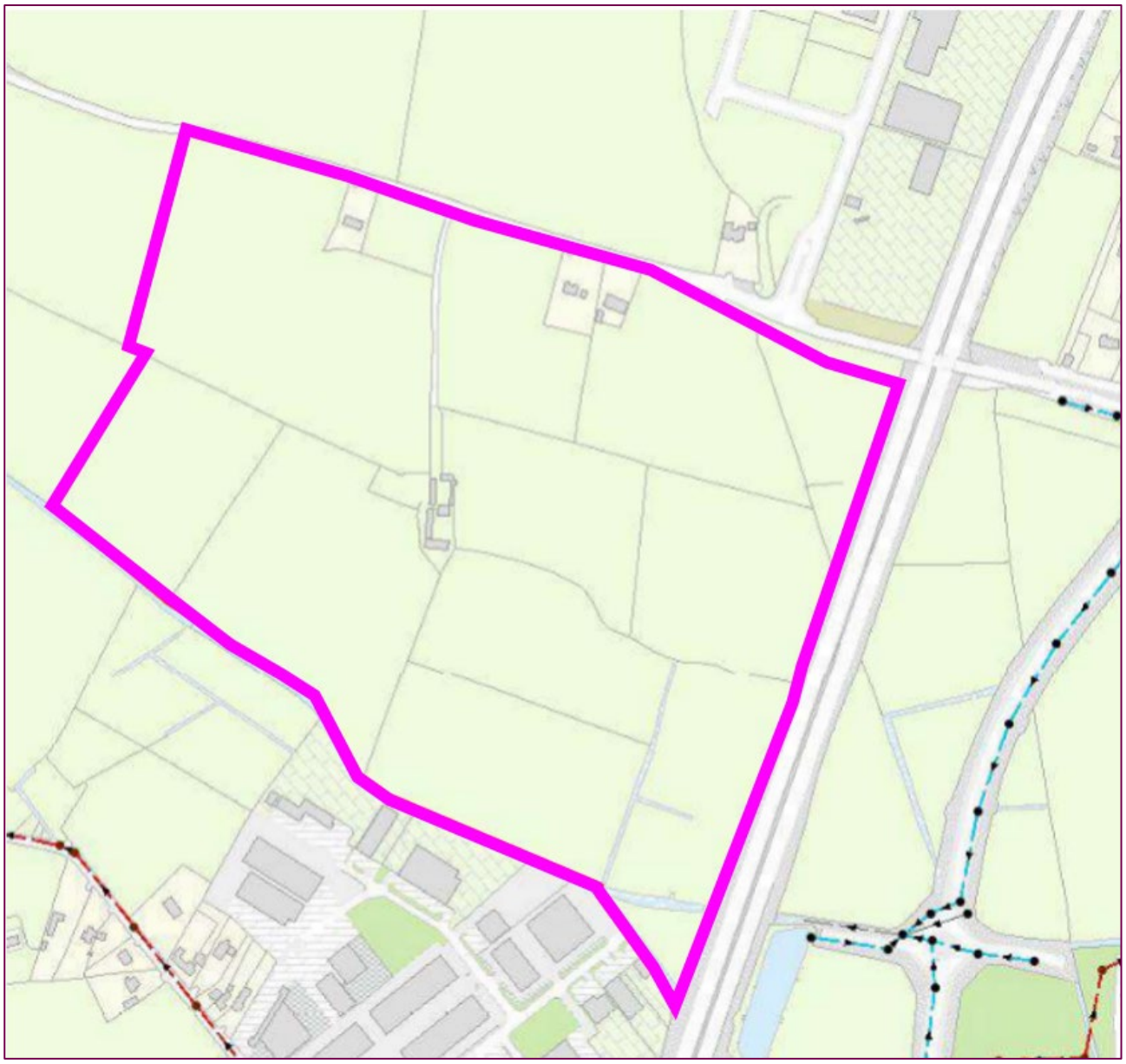


Figure 13.1: Extract from KCC/ UE Public Mapping Indicating Existing SW Services

Currently surface water from rainfall flows across the land and is collected in several ditches which traverse the site and discharge into the Bluebell Stream (also known as the Yeomanstown watercourse) which runs in a northwest direction along the southern boundary of the site. Figure 2 below indicates the extent of the existing field boundaries and existing ditches. For the purposes of the surface water management design, the Design Team have identified below the existing discharges and the natural sub-catchments on the site. Catchment 4, noted in Figure 13.2 below, discharges to open watercourses which traverse the M7 motorway and flows generally southward and discharge to the Bluebell stream to the east of the motorway. An existing 900mm pipe traverses the motorway and conveys flows from east to west below the M7 Motorway, and this existing pipe will be maintained as part of the overall surface water strategy for the site.

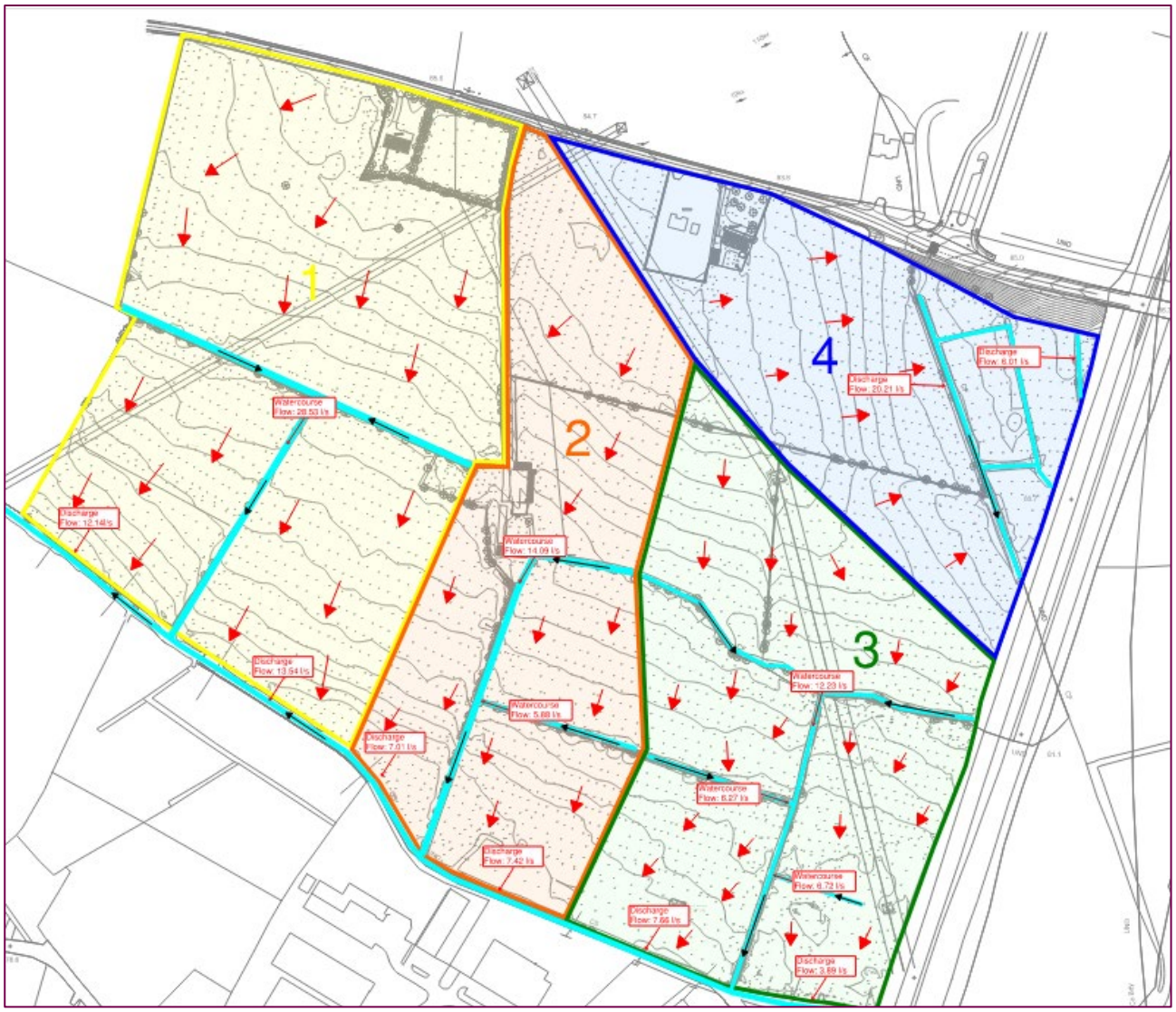


Figure 13.2: Existing SW Catchments and Flow Paths

13.4.2 Foul Water Drainage

The existing site is not served by any public or formal foul water drainage systems. Foul drainage mapping from Kildare County Council and Uisce Éireann illustrate that there is no formal public sewer drainage on the R409, adjacent to the Northern boundary of the site. There are a number of existing properties on and adjacent to the subject site. These properties are served by private, on-site WWTP/ septic tanks.

This mapping indicates the presence of a 300mm diameter sewer along the L2030 Newhall Road to the south of the site which runs in a South East to North West direction towards a pumping station which subsequently conveys flows to the Osberstown Wastewater Treatment plant to the north of the site. Extracts from the Foul Drainage Mapping indicating the Foul Water Drainage arrangement are provided in Figure 13.3 and Figure 13.4 below.

Figure 13.3: Extract from KCC/ UE Public Mapping Indicating Existing FW Services 1

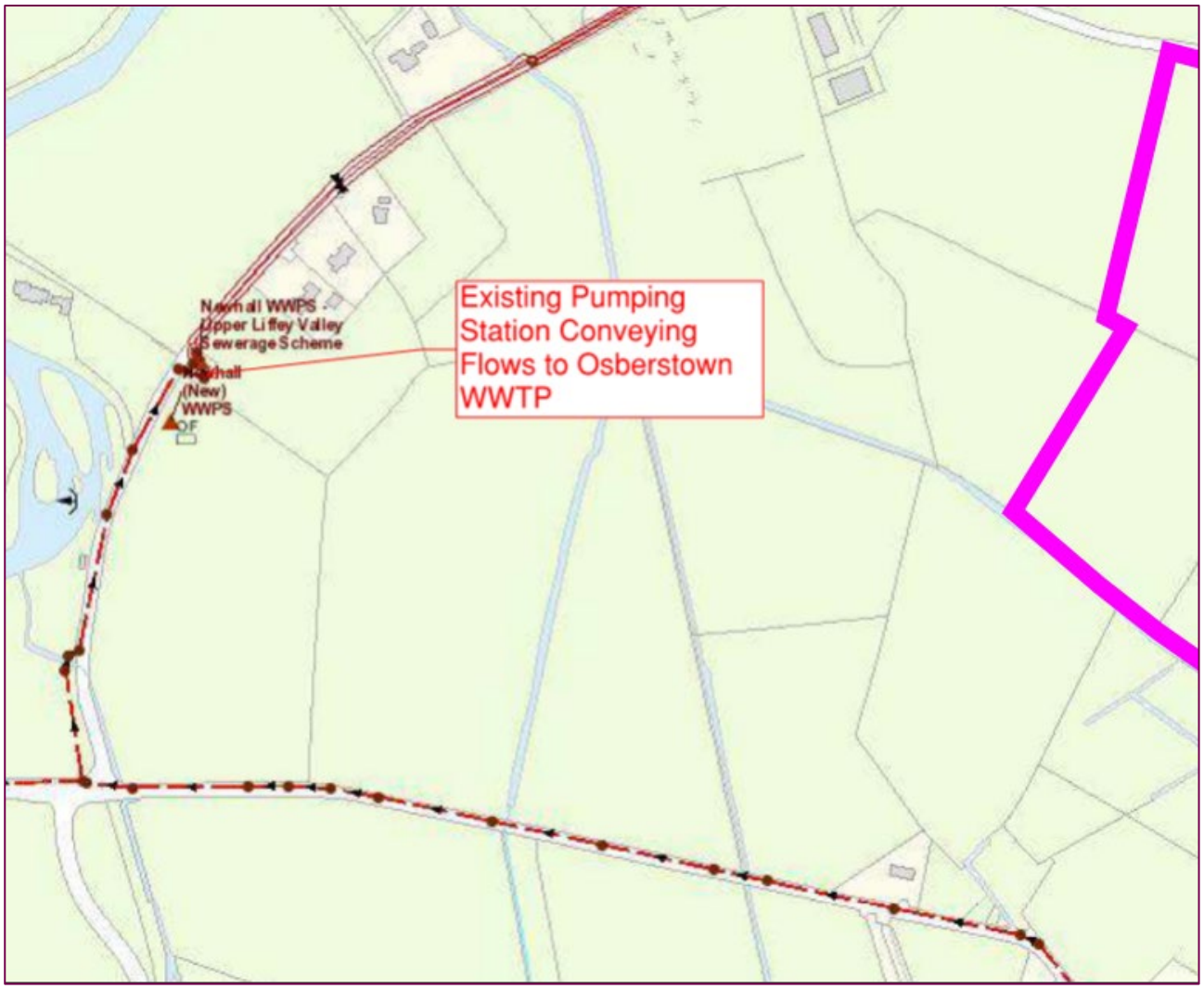


Figure 13.4: Extract from KCC/ UE Public Mapping Indicating Existing FW Services 2

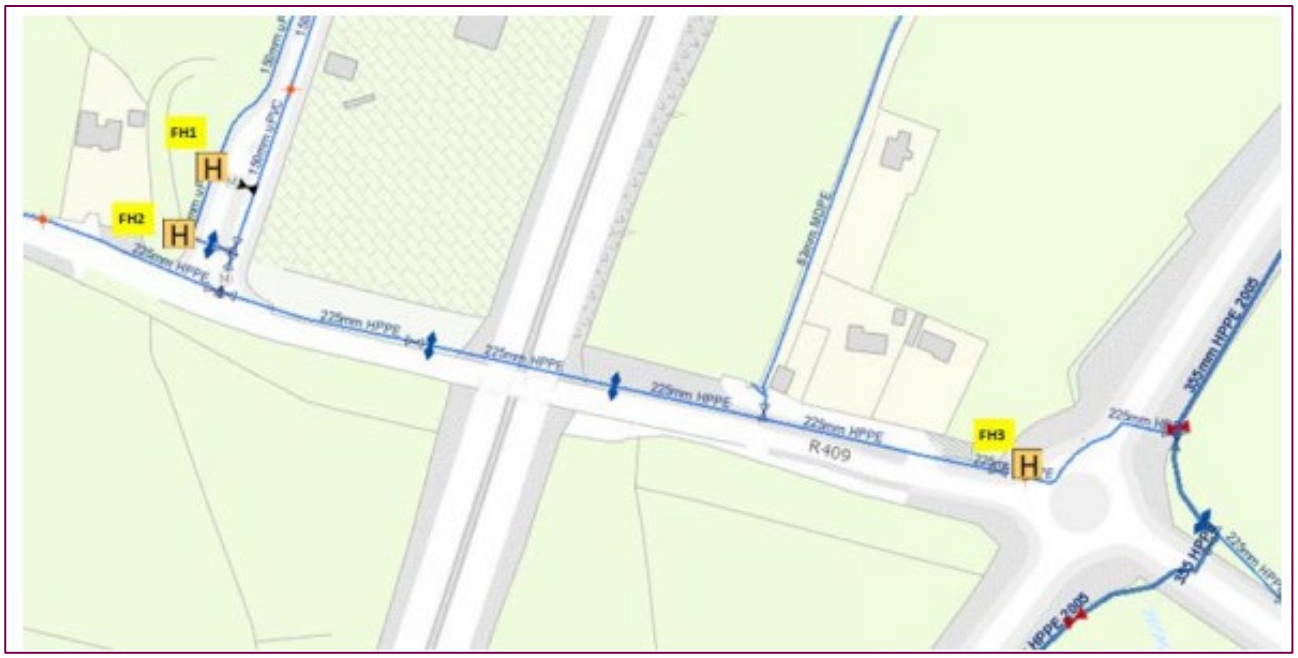
13.4.3 Water Supply

The Uisce Éireann (UE) record drawings indicate the presence of a 225mm dia. HPPE watermain to the north of the site along the R409 as illustrated in Figure 13.5 below. The location of the watermain was verified following a Ground Penetrating Radar (GPR) survey of the existing site and adjacent roads which was commissioned by the Applicant. There is minimal domestic demand from the existing properties on and adjacent to the subject site along the northern boundary. There is also a minimal demand for water on the existing farmyard within the subject site. Water demand is required for the day-to-day operation on the agricultural lands such as animal feeding troughs etc.

Figure 13.5: Extract from KCC/ UE Public Mapping Indicating Existing WM Services

13.4.3.1 Pressure Testing

The Applicant commissioned SES Water Management to carry out Fire Flow Simulation Testing on the nearest existing hydrants to the site. The hydrant was pressure logged for a period of 7 days which determined that the existing flow rate is approximately 26 l/ sec.



FH No.	Surface	Cover / Frame	Pit	Type	Depth	Marker / Plate	Canary Yellow	Spindle	Operating	Comments
1	Grass	Poor	Good	LUG	290	Yes	No	Good		No Plinth
2	Grass	Poor	Good	LUG	370	Yes	No	Missing		No Plinth
3	Grass	Poor	Good	LRT	520	Yes	No	Good		No Plinth

Figure 13.6: Extract from SES Water Management Report indicating Hydrants Tested

13.4.4 Gas Networks Ireland Gas Connection

As identified in Chapter 1 of the EIAR (Section 1.4.4), the Project will require a physical connection to the gas network to supply the on-site gas turbines. Whilst the Project includes an on-site Above Ground Installation (AGI) to regulate the supply to the turbines, a physical connection to the Gas Networks Ireland (GNI) gas network is required to provide the supply to the gas turbines. There is currently no adequate (high-pressure) gas main close to the site with only a low pressure pipeline located adjacent to the Project site as shown in Figure 13.7 below.

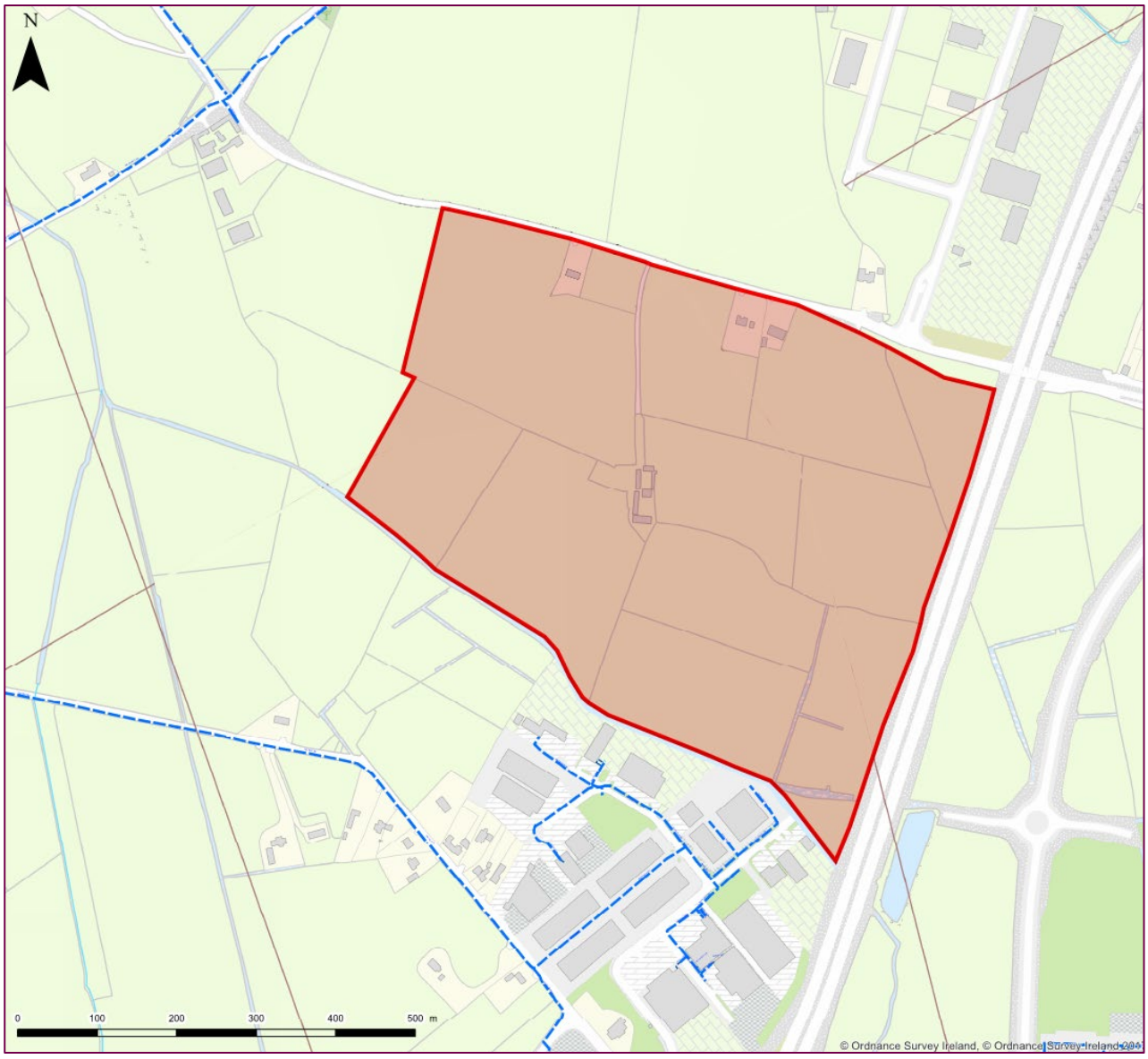


Figure 13.7: Gas Network

GNI will be responsible for providing the required infrastructure works, to construct a new high-pressure gas distribution pipeline, to the Project site boundary (on the R409), from the existing GNI AGI at Glebe West, Co. Kildare.

The final, detailed design, consenting and construction of the required infrastructure works will be the responsibility of GNI in the exercise of their own statutory functions, and therefore Herbata Ltd is not seeking planning consent to carry out these works as part of the Project.

The GNI Infrastructure Upgrade Outline Report, identifying the specification and most likely route for the connection and a description of the works required to provide same, is included in Volume II, Appendix 1.2. The report provides sufficient detail and information to allow a robust cumulative impact assessment to be conducted.

13.4.5 ESB Utility Services

Currently there are 2 overhead powerlines on site. On the west of the site, there is an existing 110kV overhead powerline which crosses the site in a north easterly direction. This overhead powerline as a single tower on site at the following co-ordinate: northing 686128.8208m, easting 719763.4211m. There are a further 2 towers for this overhead powerline, one located to the southwest of the onsite tower in the adjacent farmers field and one to the northeast of the onsite tower, across the R409 also located in a farmer's field.

In addition to the existing 110kV overhead powerline, there is an existing 220kV overhead powerline to the east of the site. This more substantial overhead powerline crosses the site in a south easterly direction. This overhead powerline has 2 towers on site at the following co-ordinate: Northing 686552.7548m, Easting 686552.7548 and Northing 686635.9805m, Easting 686635.9805m. There are a further 2 towers for this overhead powerline, one located to the northwest of the onsite towers, across the R409, in the adjacent farmers field and one to the southeast of the onsite tower, across the M7 motorway also located in a farmer's field.

In addition to the major overhead powerlines, there are domestic 10kV overhead powerlines which provide power to dwelling 1 and the agricultural buildings. It's currently unknown where the power for dwelling 2 and dwelling 3 is provided from. The 110kV and the 220kV overhead powerlines, as well as the 10kV, are owned and operated by EirGrid.

13.4.6 Fibre Utility Services

There are various options available to the Data Centre occupiers, which will develop over time. Fibre providers that are available in the vicinity are shown in Figure 13.8 below and include the following shown in Table 13.1 below.

Table 13.1: Summary of Potential Fibre Providers

Fibre Provider	Potential Fibre Services	Options / Notes
ESB-T (part of ESB Group)	Fibre is currently routed on the 110kV line crossing site so could be undergrounded and provided as a service from the new Grid substation.	ESB-T also have a Point of Presence (POP) in Monread in Sallins which could be used and then ducted to the Herbata site.
BT Ireland	Currently services are located on the railway line to the North of the Herbata site. Services can be provided from the POP in Naas to the site via new ducting.	
Eircom (Eir)	A POP is available in Naas, so new ducts will need to be laid to service the Herbata site.	Currently there is no Metropolitan Area Network (MAN) in Naas, so backbone upgrades will be required by Eir to provide high speed data services.
euNetworks (formerly Inland Fibre)	Services from euNetworks are currently available in Millennium Park and can be extended to the Herbata site.	
Aurora	High speed data services are available on parts of the Gas Networks Ireland High Pressure gas main infrastructure. With the new gas main being brought to site, discussions are ongoing about provide Aurora fibre along the new installation.	

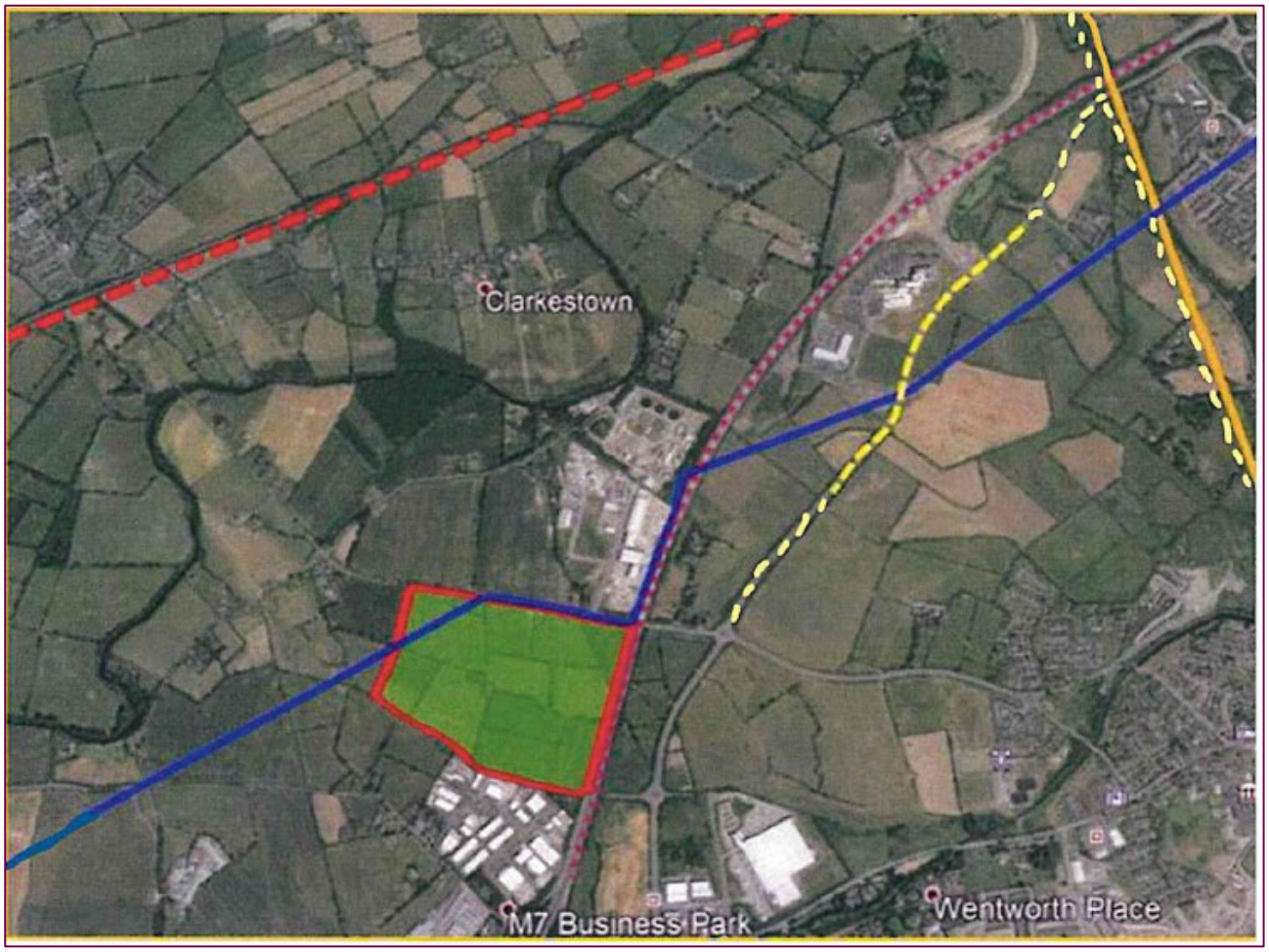


Figure 13.8: Fibre Network

Key:

- ESB-T (Blue continuous)
- BT (Light red dash)
- EIR (Orange continuous)
- euNetworks (Yellow dash)
- M7 Ducting (Dark red dash)

13.5 Impact Assessment

13.5.1 Do Nothing Scenario

If the Project was not undertaken, it is expected that there would be no significant change on the subject site regarding the surface water drainage, wastewater drainage or water supply. The site is zoned for 'Commercial and Data Centre' and it is likely that a development of a similar nature would be progressed on the site.

13.5.1.1 Surface Water

In the absence of this Project, surface water runoff from the site would continue to flow to existing onsite traversing watercourses which all ultimately discharge to the bluebell river adjacent to the southern boundary of the site. This would be considered a neutral, imperceptible and long-term effect.

13.5.1.2 Foul Drainage

In the absence of this Project, the existing properties on and adjacent to the subject site would continue to be served by private, on-site WWTP/ Septic Tank systems. There would continue to be no foul drainage discharging from the subject site. This would be considered a neutral, imperceptible and long-term effect.

13.5.1.3 Water Supply

In the absence of this Project, there would continue to be only minimal domestic demand for dwellings along with an additional domestic demand for agricultural usen the water network for the subject site which is a neutral, imperceptible, long-term effect.

13.5.1.4 Gas Networks Ireland

There are no predicted impacts should the Project not proceed. However, it's likely that future expansion of the gas services will be brought along the R409.

13.5.1.5 ESB Utility Services

There are no predicted impacts should the Project not proceed.

13.5.1.6 Virgin Media Utility Services

There are no predicted impacts should the Project not proceed. However, it's likely that future expansion of the fibre services will be brought along the R409.

13.6 Likely Significant Environmental Effects

13.6.1 Assessment of Construction Effects

The following section shall assess the effects of the receiving environment during the construction phase of the Project.

13.6.1.1 Surface Water

During the construction and demolition phase of the development, surface water from the existing development shall continue to discharge to the onsite, traversing watercourse and ultimately to the Bluebell Stream adjacent to the southern boundary of the site.

The following are the potential impacts of the Project during the construction phase:

- Mobilisation of sediments and harmful substances during the construction phase, due to exposed soil, and earth movement/ excavations, which may be flushed into the watercourses currently serving the site.
- Accidental spills of harmful substances such as petrol/ diesel or il during the delivery and storage of harmful substances or by leakages from construction machinery. Construction materials such as concrete and cement are alkaline and corrosive and can cause pollution to watercourses.
- Potential from building materials or silts to be washed into the onsite watercourses and Bluebell Stream adjacent to the southern boundary of the site, causing pollution. Waterborne silts can arise from dewatering excavations, exposed ground, stockpiles and site aul roads. Heavy siltation or grit in the surface water runoff would lead to maintenance issues such as desilting or dredging of the receiving watercourses.

In the absence of mitigation measures, these potential impacts are considered to be adverse, significant and temporary.

13.6.1.2 Foul Water Drainage

During the construction and demolition phase of the development, the contractor shall install temporary and welfare and toilet facilities. The discharge from these facilities shall be removed from the site using tankers. There shall be no effects to the surrounding Foul Drainage networks, particularly on the L2030 Newhall Road. This is due to no formal Foul Drainage Network Currently Serving the site.

13.6.1.3 Water Supply

During the construction and Demolition phase of the development, the contractor shall install temporary facilities on site for construction personnel. The water demands during the Demolition and Construction phase arising from the contractor's welfare facilities on the existing water supply networks are considered to have a neutral and imperceptible effect with a short-term duration.

13.6.1.4 Gas Networks Ireland

It is currently envisaged that GNI will construct the new gas main will alongside an existing high-pressure and low pressure main and then on to the Herbata site via the R409 road, a total distance of approximately 10.5km. It's not envisaged that this enhancement will have a significant environmental impact.

13.6.1.5 ESB Utility Services

The undergrounding of the existing overhead 110kV line will primarily occur on the Herbata site with limited impact to adjacent areas. It's not envisaged that this enhancement will have a significant environmental impact.

13.6.1.6 Fibre Utility Services

It is currently proposed that the new fibre services will be run in ducts in roads, pavements, and verges and then on to the Herbata site via existing roads. It's not envisaged that this enhancement will have a significant environmental impact.

13.6.2 Operational Phase

13.6.2.1 Surface Water

The existing site consists mainly of agricultural land that is currently being farmed. The overall existing surface water runoff discharges to the Bluebell River unattenuated and unthrottled at a combined theoretical rate of 180 l/s.

As part of the surface water development and strategy, the rate of discharge from the overall site was designed to a rate of Qbar (existing Greenfield Runoff Rate) which is 180l/s. The site is proposed to be developed in three phases with 3 no. outfalls to the Bluebell Stream. The rate of discharge from each catchment has been calculated to reflect an apportioned percentage of the overall greenfield discharge rate. Table 13.2 below indicates a summary of each catchment proposed along with the rate and percentage of the overall site discharge.

Table 13.2: Catchment Summary with Proposed Discharge Rates

	Soil Type	Allowable Discharge l/s/ha	Analysed Area	Discharge Rate	Discharge %
Catchment 1	3	6.0	10.020	60.12	33
Catchment 2	3	6.0	8.301	49.81	28

Catchment 3	3	6.0	11.748	70.49	39

The current operational activities on the subject site are predominantly agricultural and farming, Bovine and Sheep enterprises are currently operating with a large number of animals inhabiting the lands. Watercourse traversing the site are the animals' source of water supply, meaning that animals are standing and moving through the watercourses. In addition to this, each watercourse on the site is vulnerable to animal waste entering route. This suggests that the current operations on site result in some water pollution through regular and normal activities.

As part of the Project, the site shall adopt a competent water cleaning train which shall with a minimum two stage strategy of SuDS measures such as swale, filter drains, permeable paving, pond structures, and petrol/ oil interceptors. The proposals for the surface water treatment shall considerably increase the quality of the water entering the Bluebell stream compared to current operations. Figure 13.9 below outlines the proposed treatment train strategy which shall be adopted as part of the Project

The impacts on surface water discharge from the site are considered to be positive, significant and permanent.

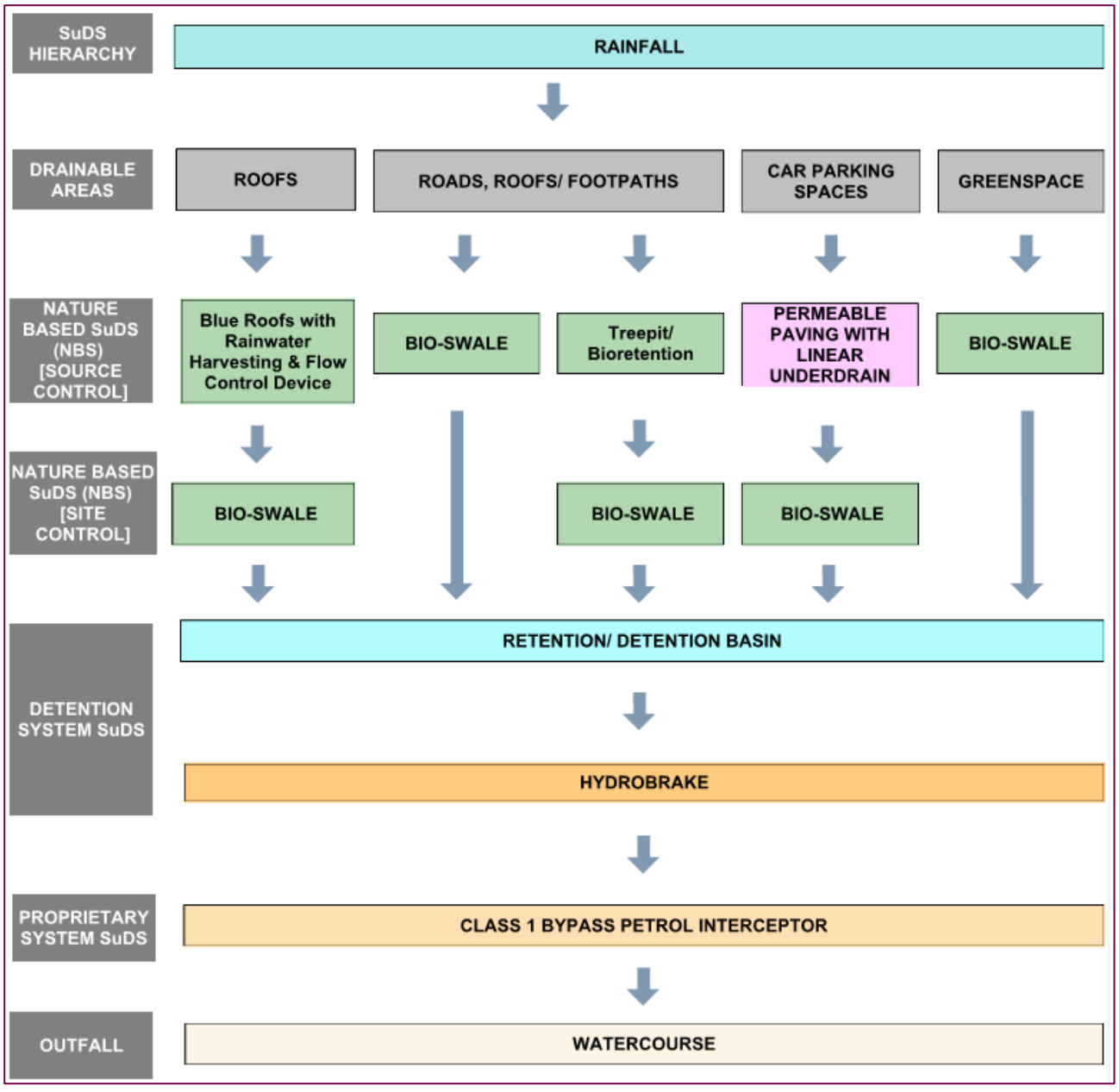


Figure 13.9: Proposed SW Treatment Train Strategy

13.6.2.2 Foul Water Drainage

The proposed foul strategy will be to provide a new foul drainage network to collect effluent from the new development via a local piped network. Each Data Centre building shall be served by its own local foul drainage network which conveys flows to a main gravity line discharging to a pumping station located on the site. There are 2 No. foul drainage catchments on the proposed site. DC Buildings 1,2 and 3 and the adjacent SID Substation (Catchment 1) shall discharge to a pumping station located to the west of the site while DC buildings 4, 5 and 6 and the AGI building (Catchment 2) shall discharge to a pumping station at the Eastern portion of the site.

Foul effluent will be pumped via two separate rising mains (one from each pumping station) and crosses agricultural lands located south of the Bluebell Stream in order to discharge to the main public foul drainage network which is located along the L2030 via a stand-off manhole

Uisce Éireann have advised, through the Connection and Developer Services (CDS) confirmation of feasibility letter, that a connection to the existing public sewer on the L2030 is feasible.

The impacts of Foul Water discharge from the site are considered to be insignificant and permanent.

13.6.2.3 Water Supply

The Water use proposed for the subject site shall be in three various systems. Process water for general operations and system cooling, firefighting water in the event of a fire within the site and potable water for general human consumption etc. It is proposed, as part of the development to supply the site from the existing Uisce Éireann network on the R409 with potable water only. Supply for process water and fire fighting will not be permitted. The below sections outline the extent of water demand/ supply networks proposed as part of the site development.

13.6.2.3.1 Process Water

It is understood from pre-planning consultations held with Uisce Éireann that process water supply from the public water supply system is not permitted. It is proposed to provide water for the industrial processes via rainwater harvesting from the data hall building roofs. Run-off will be collected in a dedicated drainage network, treated in the onsite water treatment works and stored in underground tanks located below the car park to each data hall. Surplus run-off will overflow from this network into the Surface water drainage network. The tanks have been sized to provide full annual storage of 481.5m3 storage per data centre building.

A back-up supply for process demand will be provided by retaining a permanent volume of water in the proposed attenuation ponds on the site that can be used for process water top up. This system will have associated pumping facilities that can supplement the feed to the on-site water treatment facility and be used as a top-up supply to the data centre storage tanks.

The available supply of water via rainwater harvesting therefore greatly outweighs the demand over the course of a year and any surplus rainwater will be directed to the site surface water swales and network serving each building.

13.6.2.3.2 Firefighting Water

The recommended firefighting water demand purposes for the proposed site is 100l/sec per data hall. (4 hydrants operating simultaneously at a flow rate of 25l/sec).

Uisce Éireann have noted that they cannot guarantee a fire-fighting flow of water during summer months and have recommended that the full quantity of water supply for fire-fighting purposes be stored on site. This volume will be provided in a static water storage tank which will be pressure boosted to an internal fire-fighting watermain with 8 No. Fire hydrants located in accordance with Building Regulation requirements around each Data Hall building.

13.6.2.3.3 Potable Water

A new dedicated water supply is proposed to be taken from the existing 225mm diameter public water supply located along the R409 to serve the potable water supply demands of the site. The estimated average hour water demand and peak hour water demand generated by the Project are 0.26l/s and 1.30l/s respectively as calculated in accordance with Uisce Éireann Code of Practice for Water.

Uisce Éireann have advised through the Connection and Developer Services (CDS) confirmation of feasibility letter, that a connection to the water supply network on the R409 is feasible.

The impacts on Water Supply to the site are considered to be insignificant and permanent.

13.6.2.4 Gas Networks Ireland

It is proposed that the development will be serviced by a dedicated high pressure gas supply which will supply the Turbines via a network of on-site gas supply pipework.

13.6.2.5 ESB Utility Services

Excess power from the gas turbines will feed back into the onsite GIS Substation which is part of a separate SID Application.

13.6.2.6 Fibre Utility Services

From the proposed fibre connection to the site will be a network of onsite fibre route which will connect to each of the separate buildings.

13.6.3 Cumulative Effects

13.6.3.1 Other Projects

As identified in Chapter 1 of the EIAR (Section 1.4), there are a number of other projects which have been identified for consideration in terms of their potential for cumulative effects. A number of planning applications (permitted, submitted but undetermined and under construction) have been identified within the locale of the Project site. Many of these projects are associated with the retail and industrial complexes located to the north and south of the Project site. It is not likely that the Project will result in any negative significant cumulative effects on Material Assets - Built Services in combination with these external plans/projects.

13.6.3.2 Gas Connection

As identified in Chapter 1 of the EIAR (Section 1.4.4), the Project will require a physical connection to the gas network to supply the on-site gas turbines. As identified in Chapter 1 of the EIAR (Section 1.4.4), the Project will require a physical connection to the gas network to supply the on-site gas turbines. The final, detailed design, consent and construction of the required infrastructure works will be the responsibility of GNI in the exercise of their own statutory functions, and therefore Herbata Ltd is not seeking planning consent to carry out these works as part of the Project.

The GNI Infrastructure Upgrade Outline Report, identifying the specification and most likely route for the connection and a description of the works required to provide same, is included in Volume II, Appendix 1.2. The report provides sufficient detail and information to allow a robust cumulative impact assessment to be conducted.

The GNI Infrastructure Upgrade Outline Report notes that the proposed works will likely include the construction of a new circa 300mm dia. high pressure gas pipeline which is likely to follow the existing pipeline route from the Glebe West AGI to the Naas Town AGI. From there it will most likely closely follow the existing low-pressure distribution network around the Southern Link Road to the junction with the R445 Newbridge Road, cross the Grand canal and follow the existing public foul sewer network wayleave across agricultural lands in a north-westerly direction towards the Project site.

A desktop review of the proposed high pressure gas pipeline route was undertaken to assess potential impacts on lands and soils along the most likely route.

A desktop review of the likely pipeline route was undertaken to assess potential impacts on existing built services along the route. This included a review of known public drainage and utility services via service provider online mapping systems. There are extensive drainage and utility services located along the most likely route of the pipeline. Normal best practice techniques for avoiding danger from underground and overhead services and extensive planning and survey works will be required to ensure the proposed pipe avoids clashing with local infrastructure and that adequate separation distances from adjacent and proximate services are maintained. The following key items of services infrastructure have been identified along the most likely route of the new pipeline:

- Running alongside existing 150mm dia. high-pressure gas pipeline from Glebe West AGI to Naas Town AGI.
- Crossing 1270mm dia. watermain in agricultural lands west of Glebe West
- Crossing beneath High Voltage Electrical services in agricultural lands west of glebe west
- Crossing 1600mm dia. watermain in agricultural lands west of Glebe West and south of Punchestown racecourse
- Crossing 450mm dia. watermain along L2023 West of Punchestown Racecourse
- Crossing 1200mm surface water sewer at Ballymore Eustace Road Roundabout
- Running adjacent to existing low pressure gas pipeline in verge of Naas Southern Ring Road from Ballymore Eustace Road Roundabout to Newbridge Road.
- Running adjacent to 600mm dia. foul sewer in verge of Naas Southern Ring Road from Ballymore Eustace Road Roundabout to Newbridge Road.
- Running adjacent to 900mm dia. foul sewer in through agricultural lands from Grand Canal to Caragh Road Roundabout

In conclusion, much of the likely pipeline route will follow existing gas pipelines and other services. It is considered that the new pipeline can be delivered along this route without the need to divert or relocate significant existing infrastructure.

There are no predicted negative significant cumulative effects on Material Assets - Built Services as a result of these associated projects.

13.7 Mitigation

13.7.1 Construction Phase

13.7.1.1 Surface Water

In order to mitigate against the potential impacts outlined in section 13.5.1.1 above, the following measures are proposed for the construction stage of the Project:

Groundwater or run-off that collects in excavations or foundation trenches will be drained or pumped to a construction site water treatment arrangement. The water is to be directed into a proprietary settlement tank, with a proprietary ‘silt bag’ to intercept bulk silt volumes. This process entails sediment-laden water being pumped into a filter bag, which traps the solids inside and allows the filtered water to flow freely out through the Geotextile fabric to disperse into the collection point. The proposed collection point shall be a series of silt trap fences and filter drain arrangements, adjacent to constructed pond which will act as temporary settling ponds during the construction The water and silt within the pond are to be emptied into water vacuum tanker and is to be disposed of off-site toa licenced facility.

Due to the sloping nature of the existing topography, there is a risk of silt/ sediment accumulating/ discharging towards the Bluebell stream. To mitigate against unwanted silt discharge, Silt traps in the form of silt fences or hay bale structures will be adopted across lengths of the site to intercept runoff and provide a stage of treatment and runoff filtration.

Runoff filtered through the silt trap fence shall be then intercepted by a temporary filter drain which will run directly parallel to the downstream side of the silt trap fence. The collected, filtered runoff shall discharge to

the constructed ponds which shall act as temporary settlement structures during the construction phase. The use of filter drains and temporary settlement ponds shall further treat any potential contaminated/ polluted runoff prior to discharge to a Silt Bag arrangement which will provide maximum treatment of surface water runoff entering the Bluebell stream.

During the construction phase of the development, all silt/ pollution removal strategy structures shall be constructed/ installed outside the extent of the riparian buffer which has been determined as 10m from the Bluebell Stream bank. A summary of the proposed series of silt/ pollution prevention has been provided in Figure 13.10 below.

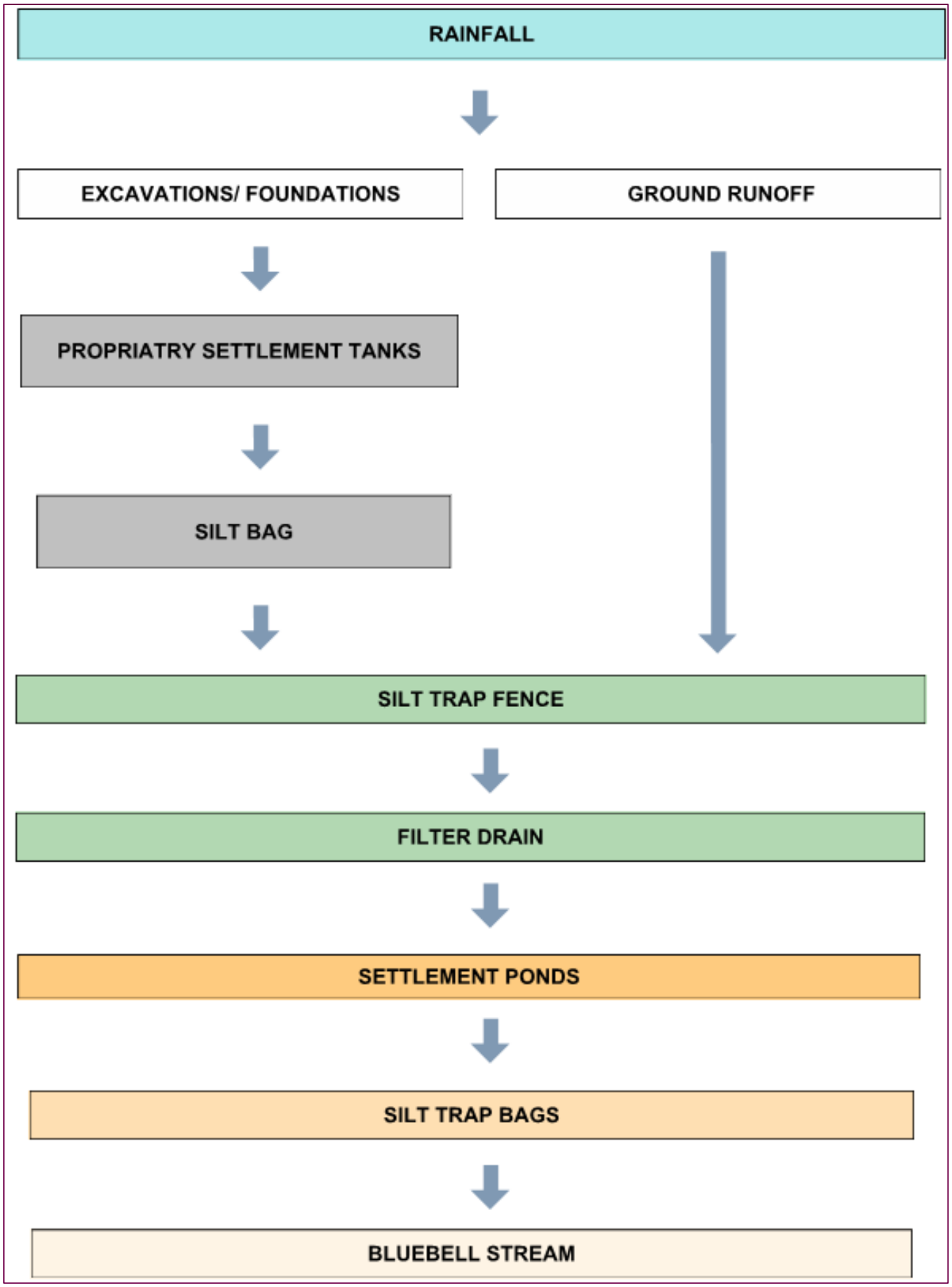


Figure 13.10: Proposed Mitigation SW Treatment Train during Construction

13.7.1.2 Foul Drainage

During construction, all new sewers shall be pressure tested and CCTV surveyed in accordance with the Uisce Éireann Standards to identify potential defects and such defects should they arise, shall be repaired prior to the connection

13.7.1.3 Water Supply

During construction, the watermains shall be tested in accordance with the requirements of Irish Water prior to connection.

13.7.1.4 Gas Connection

During construction, the gas mains shall be tested in accordance with the requirements of GNI prior to connection. The turbines will also be tested in accordance with the manufacturer's specifications.

13.7.1.5 ESB Utility Services

During construction as part of the final testing and commissioning, the overhead lines and underground cables will all be tested in accordance with the requirements of ESB and Eirgrid's standard procedures.

13.7.1.6 Fibre Utility Services

During construction, the ductwork for the fibre network will be CCTV surveyed to ensure no breakages has occurred during installation.

13.7.2 Operational Phase

13.7.2.1 Surface Water

Surface water runoff from the Project will be managed in accordance with the requirements of the Greater Dublin Strategic Drainage Study (GDSDS), with surface water attenuation and retention included as part of the main surface water drainage system. The surface water management proposals shall serve to significantly reduce the overall impact of the Project on the existing environment and shall reduce the risk of flooding in the receiving public surface water network. The proposed SuDs strategy shall also provide cleansing of all surface water prior to the discharge to the Bluebell Stream, increasing the sustainability of the design.

13.7.2.2 Foul Drainage

The Project's management company shall carry out operational inspection and maintenance regimes to ensure the system keeps operating within the design specifications.

13.7.2.3 Water Supply

The Project's management company shall carry out operational inspection and maintenance regimes to ensure the system keeps operating within the design specifications.

13.7.2.4 Gas Networks Ireland

GNI shall carry out operational inspection and maintenance regimes to carry out to ensure the system keeps operating within the design specifications.

13.7.2.5 ESB Utility Services

The substation will be managed, operated and maintained by ESB who will carry out operational inspection and maintenance regimes to ensure the system keeps operating within the design specifications.

13.7.2.6 Fibre Utility Services

The Project's management company shall carry out operational inspection and maintenance regimes to ensure the system keeps operating within the design specifications.

13.7.3 Residual Impacts

13.7.3.1 Surface Water

The provision of a Sustainable Urban Drainage System (SUDS) for the Project will provide betterment of the existing scenario. Blue roofs, bio-retention areas, ponds and swales will facilitate a reduction in surface water runoff volumes discharged from the site. Collection of surface water runoff via blue roofs, pervious paving and bio-retention areas provides improvement to water quality. Provision of attenuation storage and flow control will reduce surface water runoff rates discharged from the site. The impact on surface water is a positive, significant and long-term effect.

13.7.3.2 Foul Water

It is considered that the residual effects on the existing foul drainage network on the L2030 network will be neutral, not significant and permanent.

13.7.3.3 Water Supply

It is considered that the residual effects on the watermain network on the R409 will be neutral, not significant and permanent.

13.7.3.4 Gas Networks Ireland

It is considered that the residual effects on the gas enhancements on the R409 will be neutral, not significant and permanent.

13.7.3.5 ESB Utility Services

It is considered that the residual effects on the GIS Substation will be neutral, not significant and permanent.

13.7.3.6 Fibre Utility Services

It is considered that the residual effects on the fibre network on the R409 will be neutral, not significant and permanent.

13.8 Interactions

13.8.1 General

The design team has produced a coordinated design to minimise environmental impacts and to ensure a sustainable approach to the design if the Project. In compiling this chapter, reference has been made to the project description provided by the project coordinators, project drawings and design reports provided by the project architects and engineers and information relating to construction activities provided by the engineers. Reference can be made to the relevant chapters for additional information.

13.8.2 Climate

Climate change has the potential to increase flood risk over time. However adequate attenuation and drainage have been provided to account for increased rainfall in future years as part of the design of the Project, and it has been concluded that the associated impact will be long-term, localised, neutral and imperceptible.

13.8.3 Lands, Soil, Geology & Hydrology

There is an inter-relationship between hydrology and built services. There will be no potential cumulative impacts with no largescale dewatering required and aquifer with little importance regionally. Surface water runoff may have the limited potential to enter soil and groundwater. Implementation of appropriate mitigation measures will eliminate the potential for the influx of surface contaminants into the underlying geology and hydrology.

13.9 References

- The Greater Dublin Region Code of Practice for Drainage Works, 2012, Fingal County Council, Dublin City Council, Dún Laoghaire-Rathdown County Council, South Dublin County Council, Wicklow County Council, Kildare County Council, Meath County Council
- Greater Dublin Strategic Drainage Study, 2005, Fingal County Council, Dublin City Council, Dún Laoghaire-Rathdown County Council, South Dublin County Council, Wicklow County Council, Kildare County Council, Meath County Council
- I.S. EN752: 2017 Drain & Sewer Systems outside Buildings, 2017, National Standards Authority of Ireland
- I.S. EN12056: 2000 Gravity Drainage Systems inside Buildings, 2000, National Standards Authority of Ireland
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- Code of Practice for Water Infrastructure, 2017, Uisce Éireann
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- Wastewater Treatment Manuals, 1999, Environmental Protection Agency
- Control of Water Pollution from Construction Sites, 2001, Construction Industry Research and Information Association
- Technical Guidance Document H Drainage & Wastewater Disposal, 2016, Department of Housing, Planning, Community and Local Government
- The SuDS Manual, 2015, Construction Industry Research and Information Association
- Civil Engineering Design Report, 2023, Donnachadh O'Brien & Associates Consulting Engineers
- Construction Management Plan, 2023, Donnachadh O'Brien & Associates Consulting Engineers
- Resource and Waste Management Plan, 2023, Donnachadh O'Brien & Associates Consulting Engineers