

**Chapter 13**  
**Material Assets – Utilities**

## 13.0 MATERIAL ASSETS – UTILITIES

### 13.1 INTRODUCTION

This chapter of the EIAR was prepared by Ben Mong CEng, MEI, Associate civils with DBFL Consulting Engineers and was reviewed by Laura McLoughlin BEng (Hons), CEng, MEI, Associate Civils with DBFL Consulting Engineers. Ben has over 10 years' experience in large scale civils engineering design projects with extensive experience in Roads & Drainage, Water & Wastewater and Bulk Earthworks for Commercial, Industrial and Residential developments. Laura has over 10 years' experience working in civil engineering consultancies managing projects from inception to handover under the NI Framework for Small Sewerage Schemes, infrastructure design and drainage sustainability in residential and commercial developments.

This chapter of the EIAR will comprise of an assessment of the likely impact of the proposed development on existing surface water, water supply, foul drainage and utility services in the immediate area surrounding the site and assesses the impact of the proposed development on these aspects of the existing environment. Where necessary, proposed mitigation measures have been identified to minimise any impacts.

The material assets considered in this chapter of the EIAR will include Surface Water Drainage, Foul Drainage, Water Supply, Electricity, Gas and Telecommunications.

The proposed development comprises 345 no. residential units comprising of 84 no. 1-bed units, 104 no. 2-bed units (68 no. 2-bed apartments and 36 no. 2-bed duplexes), 157 no. 3-bed units (118 no. 3-bed duplexes and 39 no. 3 - bed houses) ranging in height from 2 no. – 4 no. storeys.

The proposed development is set out in 8 blocks which comprise the following:

- Block A1 comprises 39 No. units at 4 storeys in height (Comprising a mix of 26 No. apartments & 13 No. Duplexes)
- Block A2 comprises 33 No. units at 4 storeys in height (Comprising a mix of 22 No. apartments & 11 No. Duplexes)
- Block B1 comprises 16 No. units at 3 storeys in height (Comprising all 3 bed Duplexes)
- Block B2 comprises 16 No. units at 3 storeys in height (Comprising all 3 bed Duplexes)
- Block C comprises 42 No. units at 2-3 storeys in height (Comprising 15 No. apartments & 27 No. Duplexes)
- Block D comprises 32 No. units at 2-3 storeys in height (Comprising 12 No. apartments and 20 No. houses)
- Block E comprises 62 No. units at 2-3 storeys in height (Comprising 38 No. apartments & 24 No. Duplexes)
- Block F comprises 66 No. units at 2-3 storeys in height (Comprising 39 No. apartments & 27 No. Duplexes)
- Block G comprises 25 No units at 2-3 storeys in height. (Comprising 20 No. Duplexes and 5 No. houses)
- Block H comprises 14 No units at 2-3 storeys in height. (Comprising 14 No. houses)
- Public Open Space of c.16,670 sqm (25% of net developable area) is proposed including the parkland and main public square, in addition to the linear park of c.2,427 sqm;
- c.2,272 sqm communal open space is proposed to serve the apartments;
- 414 car parking spaces in total are proposed including 40 visitor spaces, 3 for creche set down and 2 for creche staff parking within undercroft and at surface level.
- 802 No. bicycle parking spaces comprising including 128 No. visitor spaces and 10 No. to serve the creche;
- Childcare and community facility of c.377 sqm. located in Block C;

- Upgrades to the Golf Links Road including new pedestrian and cycle infrastructure with frontage on Golf Links Road;
- Vehicular access off the Golf Links Road is to be provided to the south east of the subject site;
- In addition the proposal will provide a new internal link road. This internal link road will connect to the adjacent lands to the north, for which a separate planning application has been made to Fingal County Council under Reg. Ref. F21A/0287 (ABP Reg. Ref. 312189-21);

The proposed apartments include the provision of private open space in the form of balconies to elevations of the proposed buildings. The development also includes vehicular, pedestrian, and cycle accesses, bicycle stores, lighting, landscaping, amenity spaces, drop off areas, boundary treatments, refuse facilities, services, utilities, substations, internal roads, footpaths and shared surfaces and all associated ancillary and site development works.

The proposed development will require alteration of ground levels.

Excavation of soil and subsoil, as well as existing made ground will be required for the proposed development in preparation of a suitable sub-formation for road construction, trenching for foul and surface water infrastructure and other services.

The project, which is the subject of assessment in this EIAR and the accompanying Appropriate Assessment Report and Natura Impact Statement, will be facilitated by advance infrastructural works. These works were the subject of a Section 34 application to Fingal County Council (FCC F21A/0287) and are currently on appeal to An Bord Pleanála (ABP Reg. Ref. 312189). They consist of a connecting road to the north, drainage infrastructure, cycle and pedestrian facilities, and associated landscaping (the “AI Works”). The Project, is assessed to ensure that all cumulative and in combination effects of the Project with other plans and projects within the zone of influence, including the Advance Infrastructure Works (Ref. ABP-312189-21), the prior application for off-site road improvements serving the wider area (ABP Reg. Ref. 309409; FCC Reg. Ref. F20A/0324), and the proposals by Noonan Construction for Ballygossan Park Phase 2 have been fully assessed in order to enable the competent authority to undertake a lawful environmental impact assessment (“EIA”), appropriate assessment screening (“AA Screening”) and appropriate assessment (“AA”). The location of these neighbouring proposed developments are shown on Figure 13.1 below.

‘The Proposed SHD’ relates to the current application which has been submitted to ABP and is set out in detail above. This is the project for the purpose of the EIAR.

The following terms are used throughout the EIAR and explained below for clarity:

1. The ‘advanced infrastructure works’ is subject of a Section 34 application, and that which is currently under consideration by ABP (Ref. ABP-312189-21)
2. ‘Ballygossan Phase 2’ refers to the lands to the north in the ownership of Noonan Construction which has been the subject of an SHD pre-application to the Board (Ref. ABP 308583-20).
3. Off-site road improvements which were granted by ABP and FCC (ABP Reg. Ref. 309409; FCC Reg. Ref. F20A/0324) to provide the necessary upgrades to local road network.

## 13.2 METHODOLOGY

As part of assessing the likely impact of the proposed development, surface water runoff, foul drainage discharge and water usage calculations were carried out in accordance with the following guidelines:

- Greater Dublin Strategic Drainage Study 2005 (GDSDS),
- Method outlined in Irish Water's Code of Practice for Wastewater Infrastructure.
- Method outlined in Irish Water's Code of Practice for Water Infrastructure.
- Guidelines on the Information to be Contained In Environmental Impact Assessment Reports Draft 2017 published by the EPA.
- European Commission's Guidance Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (2017).

Assessment of the potential impacts of the proposed development on existing material assets in the vicinity of the site included:

- Review of Irish Water utility plans (surface water drainage, foul drainage and water supply).
- Consultation with Irish Water and Fingal County Council.
- Submission of a Pre-Connection Enquiry Application to Irish Water.
- Review of ESB Networks Utility Plans.
- Review of Gas Networks Ireland Service Plans.
- Review of Eir E-Maps.
- Review of Virgin Media Maps.

## 13.3 EXISTING RECEIVING ENVIRONMENT

### 13.3.1 Foul Drainage

There is an existing 225mm diameter foul line, constructed as part of the existing Ballygossan Park Phase 1 development to the north of the subject site, located within the Advanced Infrastructure Application site boundary. This existing foul line services the lands comprising the expired Hacketstown Local Area Plan (LAP). The existing foul line connects to a 375mm diameter foul sewer located approximately 265m to the east of the site in the Downside Park neighbourhood, before discharging to a 450mm diameter foul sewer in Holmpatrick. These sewers drain southwards along Holmpatrick/Rush Road, increasing to a 600mm diameter before discharging to the municipal pumping station. The foul sewage is then pumped to the Barnageeragh Wastewater Treatment Works.

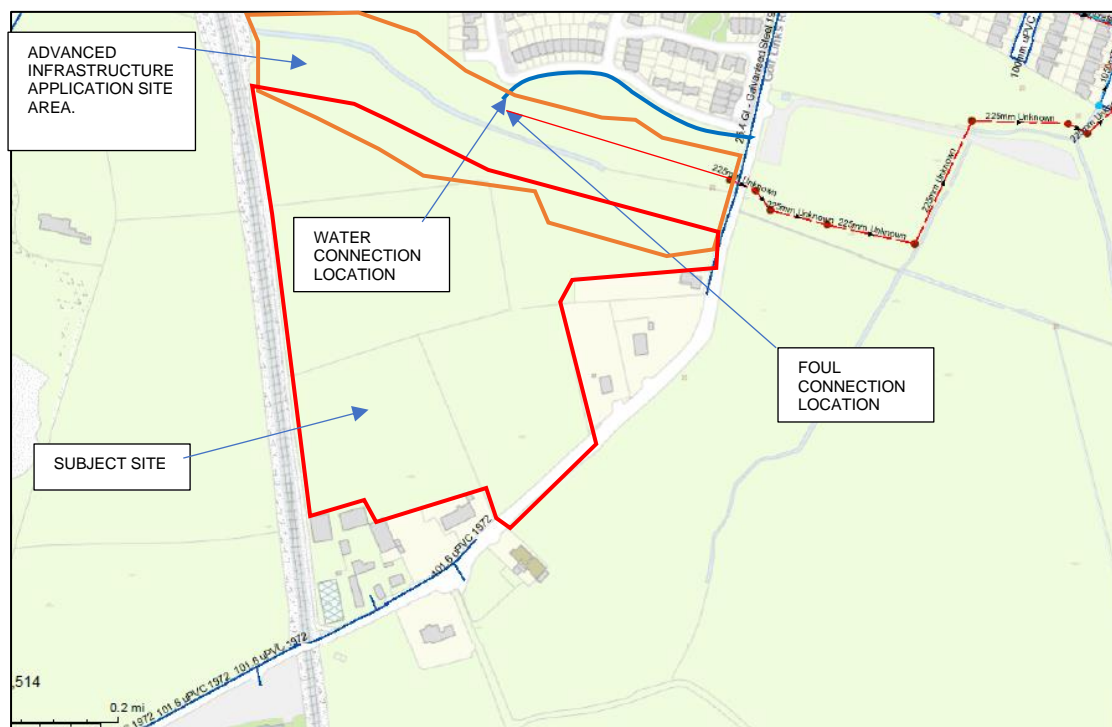
As noted above, an Advanced Infrastructure Application (AI) was recently submitted to Fingal County Council under planning reference number F21A/0287. This application made provision for the foul sewer network infrastructure, located within the AI development boundary, required to facilitate this proposed development and its connection to the existing public foul sewer infrastructure constructed as part of Ballygossan Park Phase 1.

This development is proposed to connect to the 225mm dia foul sewer to be installed as part of the AI submission. It is proposed that this development will be serviced internally by 150mm and 225mm diameter foul sewers and will include the provision of services connections, inspection chambers etc. throughout the site.

The foul sewer infrastructure provided, 225mm diameter, has been deemed suitable and it has been confirmed there is capacity in the network without the need for upgrade by Irish Water within their confirmation of feasibility letter for the proposed development (I.W. Reference: CDS 20001955). They have also issued a Design Statement of Acceptance for the proposed foul sewer design within the

proposed development. A copy of both these letters can be found in Appendix B of the Engineering Services Report (ESR).

The location of this existing foul sewer is shown on Irish Water Network Plans (Figure 1 extract below) as well as within the relevant civil engineering layouts submitted as part of this application separately.



**Figure 13.1: Extract from Irish Water Network Plans (Site Boundary Indicative Only)**

### 13.3.2 Surface Water Drainage

The surface water runoff from site will drain into a newly constructed and extended Regional Drainage Facility (RDF), included as part of the AI planning application. The RDF drains into a headwall fitted with a trash screen and manhole fitted with a vortex flow control device which is the designed outfall of the RDF. The vortex flow control device has been designed and installed to allow for the surface water management of the whole of the Hackettstown lands included in the expired LAP. This will provide a suitable surface water discharge point for the proposed development.

The Engineering Services Report (produced by DBFL) describes the proposed network in detail and has been included as part of this planning application under separate cover.

### 13.3.3 Water Supply

The locations of the existing public water mains are shown on Irish Water’s Network Plan (refer to Figure 1 extract above).

There is an existing 1-inch diameter Galvanised Steel watermain in the Golf Links Road. Irish Water records indicate this watermain terminates along the eastern boundary of the site. The records also show an existing 100mm diameter uPVC watermain located along the southern boundary of the subject site, terminating in close proximity to the planned northern link entrance to the proposed development.

During the Ballygossan Park Phase 1 construction, a watermain spur was left for connection for future development. The water connection provided, 150mm diameter, has been confirmed as suitable without upgrade by Irish Water within their confirmation of feasibility letter (I.W. Reference: CDS 20001955). A Statement of Design Acceptance was also received from Irish Water for the watermain design for the proposed development. A copy of both these letters can be found in Appendix B of the Engineering Services Report (ESR).

#### **13.3.4 Utilities**

The existing site has overhead electrical cables passing across the site. The site does not contain ducting or services for telecoms.

### **13.4 CHARACTERISTICS OF THE PROJECT**

#### **13.4.1 Foul Drainage**

An Advanced Infrastructure Works Application (AI) F21A/0287 is before the Board on appeal. This application made provision for the inclusion of the foul sewer network infrastructure, located within the AI development boundary, required to facilitate this proposed SHD development and its connection to the existing foul sewer infrastructure.

This development will connect to the 225mm diameter foul sewer, proposed to be installed as part of the AI application. It is proposed that this development will be serviced internally by 150mm and 225mm diameter foul sewers and will include the provision of services connections, inspection chambers etc. throughout the site in line with Irish Water requirements.

Foul sewers have been designed and will be constructed in accordance with the Irish Water's '*Standard Details for wastewater infrastructure*' and '*Code of practice for wastewater infrastructure*'. In addition, foul sewers have been designed to the Building Regulations 1997, as amended, (referred to within as 'the Building Regulations') and specifically in accordance with the principles and methods set out in EN 752:2008 and DOE '*Recommendations for Site Development Works*' (1998). In addition, HR Wallingford '*Tables for the Hydraulic Design of Pipes, Sewers and Channels*' and Water UK/WRC '*Sewers for Adoption – 6th Edition*' have been applied.

#### **13.4.2 Surface Water Drainage**

In order to facilitate the surface water run off generated by the proposed development, as well suitably intercept, treat and attenuate surface water in accordance with the relevant guidelines and legislation, partial provision of surface water networks and connections for this development were included as part of the AI Works application made under planning reference number F21A/0287. This includes the complete construction of the Regional Drainage Facility (RDF). The remainder of the surface water infrastructure required to connect to the public network has been constructed as part of Ballygossan Park Phase 1.

Surface water from the subject development will be discharged after attenuation within the Regional Drainage Facility, to the existing surface water network to the east of the Hackettstown Lands via the headwall structure and outlet constructed as part of the Ballygossan Park Phase 1 development.

The site's surface water management infrastructure has been designed in accordance with the Greater Dublin Strategic Drainage Study 2005 (GSDSDS).

Proposed surface water drains have been designed in accordance with the Greater Dublin Strategic Drainage Study 2005 (GSDSDS), the Department of the Environment's '*Recommendations for Site Development Works for Housing Areas*' (1998), the Department of the Environment's Building

Regulations “*Technical Guidance Document Part H Drainage and Waste Water Disposal*” and BS EN 752: 2008 “*Drain and Sewer Systems Outside Buildings*”.

### 13.4.3 Water Supply

During the construction of the adjacent Ballygossan Park Phase 1 development, a 150mm diameter watermain was installed up to the boundary of the subject site, for connection of future development.

As part of the AI Works application mentioned above, provision was made for the extension of this 150mm diameter watermain.

The subject proposed development will utilise this connection as main supply.

It is proposed that this development will be serviced by 150mm and 100mm diameter watermains and will include the provision of new fire hydrants and relevant infrastructure throughout the site.

All connections, valves, hydrants, meters etc. have been designed and are to be installed in accordance with Irish Water’s Code of Practice / Standard Details and the Department of the Environment’s Building Regulations “*Technical Guidance Document B - Fire Safety (2020)*”.

### 13.4.3 Utilities

In order to facilitate the new development the proposal is to install new services to serve the houses and apartments. This involves the following:

#### Electrical Services

- Rerouting the overhead lines underground.
- New Unit Substations.
- New underground ducting and electrical infrastructure to serve the development.
- New underground ducting and electrical infrastructure to serve the development lighting.

#### Comms Services

- New underground ducting and comms infrastructure to serve the development.

#### Natural Gas Services

It is not proposed that gas is provided to the houses and apartments in the development.

## 13.5 IMPACTS OF THE PROJECT

### 13.5.1 Foul Sewerage

#### 13.5.1.1 Construction

- Improper discharge of foul drainage from contractor’s compound.
- Discharge from the excavated areas could potentially lead to siltation, surcharge and flooding within the sewerage system.
- Connections to existing foul line may lead to interruption to foul supply.

#### 13.5.1.2 Operational

- Increased discharge to foul drainage network.
- Leaks in the network causing potential contamination of groundwater and surface water.

### 13.5.1.3 Cumulative Impacts

In terms of cumulative impacts the following developments have been assessed:

- The 'advanced infrastructure works' is subject of a Section 34 application, and that which is currently under consideration by ABP (Ref. ABP-312189-21)
- 'Ballygossan Phase 2' refers to the lands to the north in the ownership of Noonan Construction which has been the subject of an SHD pre-application to the Board (Ref. ABP 308583-20). This is included as the cumulative impacts from this project have been assessed with the Advance Infrastructure application.
- Off-site road improvements which were granted by ABP and FCC (ABP Reg. Ref. 309409; FCC Reg. Ref. F20A/0324) to provide the necessary upgrades to local road network.

The above developments (excluding the road improvements) will have similar impacts during the construction phase in relation to the foul system. Should the construction phase of any developments coincide with the development of this proposed site, potential cumulative impacts are not anticipated once mitigation measures noted below are implemented.

- Additional flow to wastewater treatment plant.

## 13.5.2 Surface Water

### 13.5.2.1 Construction

- Surface water runoff during the construction phase may contain increased silt levels (e.g. runoff across areas stripped of topsoil) or become polluted by construction activities.
- Discharge of rainwater pumped from excavations may also contain increased silt levels (potential impact on existing hydrology e.g. discharge to existing open drain).
- Accidental spills and leaks associated with storage of oils and fuels, leaks from construction machinery and spillage during refuelling and maintenance.
- Concrete runoff, particularly discharge of wash water from concrete trucks

### 13.5.2.2 Operational

- Increased impermeable surface area will reduce local ground water recharge and potentially increase surface water runoff (if not attenuated to greenfield runoff rate).
- Accidental hydrocarbon leaks and subsequent discharge into piped surface water drainage network (e.g. along roads and in driveway areas).
- Risk of flooding if surface water runoff from the development site is not attenuated and managed properly.

### 13.5.1.3 Cumulative Impacts

In terms of cumulative impacts the following developments have been assessed:

- The 'Advanced Infrastructure works' is subject of a Section 34 application, and that which is currently under consideration by ABP (Ref. ABP-312189-21)
- 'Ballygossan Phase 2' refers to the lands to the north in the ownership of Noonan Construction which has been the subject of an SHD pre-application to the Board (Ref. ABP 308583-20). This is included as the cumulative impacts from this project have been assessed with the Advance Infrastructure application.



- Off-site road improvements which were granted by ABP and FCC (ABP Reg. Ref. 309409; FCC Reg. Ref. F20A/0324) to provide the necessary upgrades to local road network.

The above developments will have similar impacts during the construction phase in relation to the existing surface water system. Should the construction phase of any developments coincide with the development of this proposed site, potential cumulative impacts are not anticipated once mitigation measures noted below are implemented.

### **13.5.3 Water Supply**

#### **13.5.3.1 Construction**

- Cross contamination of potable water supply to construction compound.
- The installation of water supply line will be conducted in parallel with other services using trench excavation.

#### **13.5.3.2 Operational**

- Increased potable water consumption.

#### **13.5.3.3 Cumulative Impacts**

- Increased demand on the water supply infrastructure. Irish Water have been consulted and have confirmed the increased demand can be facilitated within the existing infrastructure.

## **13.6 MITIGATION MEASURES**

A detailed “Construction Management Plan” will be prepared by the Contractor and implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the “Construction Management Plan”.

### **13.6.1 Foul Sewerage**

- In order to reduce the risk of defective or leaking sewers, all new sewers should be laid in accordance with the relevant standards, pressure tested, and CCTV surveyed to ascertain any possible defects.
- The construction compound will include adequate staff welfare facilities including foul drainage. Foul drainage discharge from the construction compound will be removed off site to a licensed facility until a connection to the public foul drainage network has been established.
- It is envisaged that the development would take place and be occupied over a reasonable time period, and therefore the downstream foul sewerage system (foul sewer network and wastewater treatment facility) would be gradually loaded.

### **13.6.2 Surface Water**

- Surface water runoff from areas stripped of topsoil and surface water collected in excavations will be directed to on-site settlement ponds where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.
- In order to mitigate against spillages contaminating the surrounding surface water and hydrogeological environments, all oils, fuels, paints and other chemicals will be stored in a secure bunded hardstanding area. Refuelling and servicing of construction machinery will take place in a designated hardstanding area which is also remote from any surface water inlets (where not possible to carry out such activities off site).

- Concrete batching will take place off site and wash down and wash out of concrete trucks will take place off site (at authorized concrete batching plant in full compliance with relevant planning and environmental consents).
- Discharge from any vehicle wheel wash areas is to be directed to on-site settlement ponds.
- In order to reduce the risk of defective or leaking sewers, all new sewers should be laid in accordance with the relevant standards, pressure tested, and CCTV surveyed to ascertain any possible defects.
- Regular maintenance of the drainage network including the petrol interceptor, flow control device and surface water storage system will ensure that they are operating correctly.
- The design of proposed site levels (roads etc.) has been carried out to ensure the proposed development is elevated and set in such a way as to avoid concentrating additional surface water flow in a particular location.
- Surface water runoff from the site will be attenuated to the greenfield runoff rate as outlined in the Greater Dublin Strategic Drainage Study 2005 (GDSDS).
- Surface water discharge rates will be controlled by a Hydrobrake type vortex flow control device.
- A contract will be entered into with a suitably qualified contractor for maintenance of the attenuation system, Hydrobrake and fuel / oil separator noted above.

### **13.6.3 Water Supply**

- The watermains will be tested according to the requirements of Irish Water and Fingal County Council prior to commissioning.
- Where possible backup network supply to any services will be provided should the need for relocation or diversion or existing services be required otherwise relocation or diversion works will be planned to incur minimal impact, with users notified in advance of any works.

### **13.6.4 Utilities**

- The electrical ducting and infrastructure is to be installed to the requirements of ESB Networks and the national standards.
- The comms ducting and infrastructure is to be installed as per the requirements of the provider.

These mitigation measures are also contained in the Construction and Environmental Management Plan under separate cover.

## **13.7 RESIDUAL IMPACTS**

### **Construction Phase – SHD**

Taking account of the mitigation measures proposed during the construction of the application site, the residual impacts for the construction phase are considered to be neutral and the significance of the impact has been assessed as not significant.

### **Construction Phase – Cumulative Impact of Other Relevant Projects**

Considering the proposed Advance Infrastructure Works there is no additional methods of construction considered than what has been proposed in this SHD, therefore cumulative residual impacts for construction are considered to be neutral and the significance of the impact has been assessed as not significant.

## **Operational Phase – SHD**

Taking account of the mitigation measures proposed during the construction of the application site, the residual impacts for the operational phase are considered to be neutral and the significance of the impact has been assessed as not significant.

## **Operational Phase – Cumulative Impact of Other Relevant Projects**

Considering proposed Advance Infrastructure Works and Ballygossan Phase 2 as noted above and the confirmation required from Irish Water of system capacity, the residual impacts for the operational phase are considered neutral, and the significance of the impact has been assessed as not significant.

### **13.8 ‘Do NOTHING’ SCENARIO**

Under a ‘Do Nothing’ scenario it is expected that the site would be utilised for agricultural purposes (predominantly arable).

### **13.9 MONITORING AND REINSTATEMENT**

No monitoring is required in addition to those specifically noted in other chapters of the EIAR.

### **13.10 DIFFICULTIES IN COMPILING INFORMATION**

No major difficulties were encountered while undertaking this assessment.

### **13.11 REFERENCES**

- Greater Dublin Strategic Drainage Study 2005 (GDSDS).
- Method outlined in Irish Water’s Code of Practice & Standard Details for Wastewater Infrastructure.
- Method outlined in Irish Water’s Code of Practice & Standard Details for Water Infrastructure.
- Guidelines on the Information to be Contained in Environmental Impact Assessment Reports Draft 2017 published by the EPA.
- European Commission’s Guidance Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report (2017).
- Greater Dublin Strategic Drainage Study (GDSDS).
- The Building Regulations 1997, as amended, (‘the Building Regulations’)
- Department of the Environment’s Building Regulations “*Technical Guidance Document B - Fire Safety (2020)*”
- Technical Guidance Document H – Drainage and Waste Water Disposal (2016)
- Department of the Environment’s “*Recommendations for Site Development Works for Housing Areas*” (1998).
- Department of the Environment’s Building Regulations “*Technical Guidance Document Part H Drainage and Waste Water Disposal*”.
- BS EN 752: 2008 “*Drain and Sewer Systems Outside Buildings*”.
- ESB Networks Utility Plans.
- Gas Networks Ireland Service Plans.
- Eir E-Maps.
- Virgin Media Maps.