



Clifton Scannell Emerson
Associates

Barnhill Garden Village Strategic Housing Development (SHD) - Engineering Report



**Client: Alanna Homes and Alcove
Ireland Four Limited**

Date: 1st July 2022

Job Number: 16_053

Civil
Engineering

Structural
Engineering

Transport
Engineering

Environmental
Engineering

Project
Management

Health
and Safety

CONSULTING ENGINEERS



Document Control Sheet

Project Name: Barnhill Garden Village Strategic Housing Development (SHD)
Project Number: 16_053
Report Title: Engineering Report
Filename: RPT-16_053-005

Issue No.	Issue Status	Date	Prepared by	Checked by
1st	DRAFT	11 th March 2020	CP	GE
2nd	DRAFT	12 th March 2020	CP	GE
3rd	DRAFT	16 th Sept 2021	CP	GE
4th	FINAL	1 st July 2022	CP	GE

Table of Contents

1	Introduction.....	4
2	Site Description	5
2.1	Existing Site Description.....	5
2.2	Proposed Ongar to Barnhill Distributor Road.....	5
2.3	Site Investigation Findings	5
3	Strategic Flood Risk Assessment	6
4	Surface Water Network and Sustainable Urban Drainage Systems (SuDS).....	8
4.1	Existing Surface Water Drainage	8
4.2	Future Receiving Environment Surface Water Drainage	8
4.3	SuDS Constraints.....	8
4.4	Proposed Surface Water Drainage Network and SuDS Strategy	8
5	Foul Sewer Network.....	9
5.1	Existing Foul / Wastewater Sewer Drainage.....	9
5.2	Future Receiving Environment Foul / Wastewater Sewer Drainage.....	9
5.3	Proposed Foul Sewer Network.....	10
6	Water Supply Network	11
6.1	Existing Water Supply and Distribution	11
6.2	Future Receiving Environment Water Supply and Distribution	11
6.3	Proposed Water Supply and Distribution Network	11
7	ESB Power Supply Network.....	12
7.1	Existing ESB Power Supply Network	12
7.2	Future Receiving Environment ESB Power Supply Network	12
7.3	Proposed ESB Power Supply Network	12
8	Telecommunications Supply Network.....	13
8.1	Existing Eir Supply Network and Other Existing Telecommunications Networks	13
8.2	Future Receiving Environment Eir Network	13
8.3	Future Receiving Environment Virgin Media Network.....	13
8.4	Proposed Eir Network.....	13
8.5	Proposed Virgin Media Network.....	14
9	Proposed Internal Road / Street Network and Pedestrian and Cyclist Movement	14
10	List of Appendices	14
11	Appendix A – Relevant Document References	15
12	Appendix B – Relevant Drawing References	16

1 Introduction

The Barnhill Strategic Housing Development (SHD) is a proposed residential development located approximately 3km west of Blanchardstown. The development is a joint venture between developers Alanna Homes and Alcove Ireland Four Limited. The SHD lands are situated directly south of the Dunboyne to Clonsilla Rail line and Hansfield Train Station, west of the Royal Canal and the Dublin to Maynooth Railway Line and east of the existing R149 Leixlip to Clonee Regional Road. It is the vision of the property developers and Fingal County Council to create a place to live that is appealing, distinctive and sustainable. The number of residential units supported on the SHD lands will be 1,243 units. The proposed development shall also include provision for commercial units and a crèche facility. Lands are also to be set aside for a future primary school within the Village Centre Character Area of the development. A detailed description of the proposed Barnhill SHD is included within Chapter 2 of the EIAR.

The future Ongar to Barnhill Distributor Road, to be delivered by Fingal County Council that shall be constructed prior to the Barnhill SHD and shall provide the main accesses to the development site (see section 2.2 of this report for further information).

Clifton Scannell Emerson Associates (CSEA) have been appointed by the clients, Alanna Homes and Alcove Ireland Four Limited, to carry out the planning stage design of the civil engineering elements for the future residential development. As part of their duties, CSEA were requested to prepare this Engineering Report in support of a planning application for the Barnhill Strategic Housing Development (SHD).

This report addresses the following elements from an engineering perspective:

- Strategic Flood Risk Assessment.
- Surface Water Network and Sustainable Urban Drainage Systems (SuDS).
- Foul Sewer Network.
- Water Supply Network.
- ESB Power Supply Network.
- Telecoms Supply Network (Virgin Media and Eir).
- Proposed Internal Road / Street Network.

2 Site Description

2.1 Existing Site Description

The proposed development shall be located in existing rural agricultural lands in the Barnhill area South of Ongar Village. The site largely consists of arable lands with existing farm buildings located within the northern part of the site. These farm buildings are accessed from the existing Barberstown Lane North Road. The lands fall gradually from the existing Dunboyne to Clonsilla Railway Line, located to the north of the site, towards the existing Barberstown Lane South Road, located to the south of the site. Based on existing topographical surveys of the site, the ground levels vary between 61.5m AOD in the north-west of the site to 57.5m AOD in the south-east. The levels range from 61m AOD in the north-east of the site to 58.5m AOD in the south-west. The existing farm buildings / sheds and their associated yards are to be demolished / taken up as part of the proposed development.

An existing watercourse, the Barnhill Stream, enters the site from the west via an existing culvert under the existing R149 Regional Road. It then flows in an open channel in a south-easterly direction through the site before exiting the lands via a culvert / stream bridge under the existing Barberstown Lane South Road. The stream continues from here towards a long culvert that conveys the stream below the Royal Canal and the Dublin to Maynooth Railway Line. The Barnhill Stream continues from here through Luttrellstown Golf Course / Demesne and flows into the River Liffey. The section of stream open channel that passes through the lands is currently heavily overgrown.

2.2 Proposed Ongar to Barnhill Distributor Road

The future Ongar to Barnhill Distributor Road is to be constructed to provide access to the Barnhill SHD lands. The main section of this future road shall connect to the existing Ongar Distributor Road roundabout located to the north of the site. From here the proposed road shall run in a southerly direction across the existing railway line, by means of a new railway overbridge, and connect to Barberstown Lane South and the existing R149 regional road by means of a newly constructed signalised junction. This scheme will also include the full upgrade of the Barberstown Lane South Road, complete with two no. roundabout accesses that will provide future access to the proposed development lands.

The main road of the proposed Ongar to Barnhill Distributor Road shall run in a north-south direction through the western side of Barnhill SHD lands. The Barnhill SHD area to the west of the Distributor Road which will comprise an area of 3.3 hectares and the Barnhill SHD area to the east of the Distributor Road which will comprise an area of approximately 26.3 hectares.

The proposed Ongar to Barnhill Distributor Road shall fully accommodate for its surface water runoff by means of constructed detention basins that have been appropriately sized as part of the road design. The size of some of the detention basins associated with this road have been increased in order to allow surface water from this area of the development to be accounted for and adequately stored.

The Ongar to Barnhill Distributor Road Scheme shall be constructed prior to the commencement of construction works for the proposed development and, therefore, shall be considered part of the future receiving environment of the Barnhill SHD.

2.3 Site Investigation Findings

On the instruction of Clifton Scannell Emerson Associates (CSEA), Site Investigations Limited (SIL) were appointed to complete soakaway tests at numerous locations within the Barnhill SHD site. The soakaway tests were completed during July 2018 to ascertain the rate of infiltration of the soils within the site. From analysis of the soakaway test results it was found that the area is largely unsuitable for soakaway design with eight of the ten tests failing to meet the requirements of the BRE Special Digest 365. The BRE Digest stipulates that the pit should empty within 24 hours. The test analysis indicated that this condition could not be satisfied for most of all tests carried out. SIL also stated that the unsuitability of the site for soakaways was further suggested by the descriptions of the soils encountered at the locations where the soakaway tests were carried out, i.e., clay & silt soils.

3 Strategic Flood Risk Assessment

The Barnhill SHD lands were assessed for risk of flooding in accordance with the Planning System and Flood Risk management Guidelines for Planning Authorities 2009 issued by the Department of the Environment, Heritage, and Local Government (DoEHLG) and as updated by the Department Circular PL 02/2014. A Flood Risk Assessment was carried out for the Barnhill SHD site by Garland Consultancy on behalf of Fingal County Council.

Flooding within the area is associated with both Pluvial and Fluvial occurrences. The existing Barnhill Stream that passes through the lands was surveyed as part of the Liffey River catchment and for the Local Area Plan. Flood risk maps for stream were subsequently generated for the 1% (1 in 100 year) and 0.1% (1 in 1000 year) probabilities of flooding. These generated maps also included an allowance for climate change. The flood risk assessment analysis also took into consideration the future Ongar to Barnhill Distributor Road (see section 2.2) to determine its effect on the existing flood plain.

The flood modelling showed that there are large areas of low-lying lands located to the north and south of the existing stream that are liable to flooding. It was determined that this flooding is largely caused by the existing capacity of the culvert that conveys the stream under the Royal Canal and the Dublin to Maynooth Railway line, located to the south of the lands. It was discovered that this culvert caused the stream to back up during both the 1% and 0.1 % rainfall events. This, in turn, inundated the low-lying areas on both banks of the stream with flood waters.

Figure 1, shown below, displays mapping of the 1% (1 in 100 year) probability of flooding including allowances for climate change and the future Ongar to Barnhill Distributor Road.

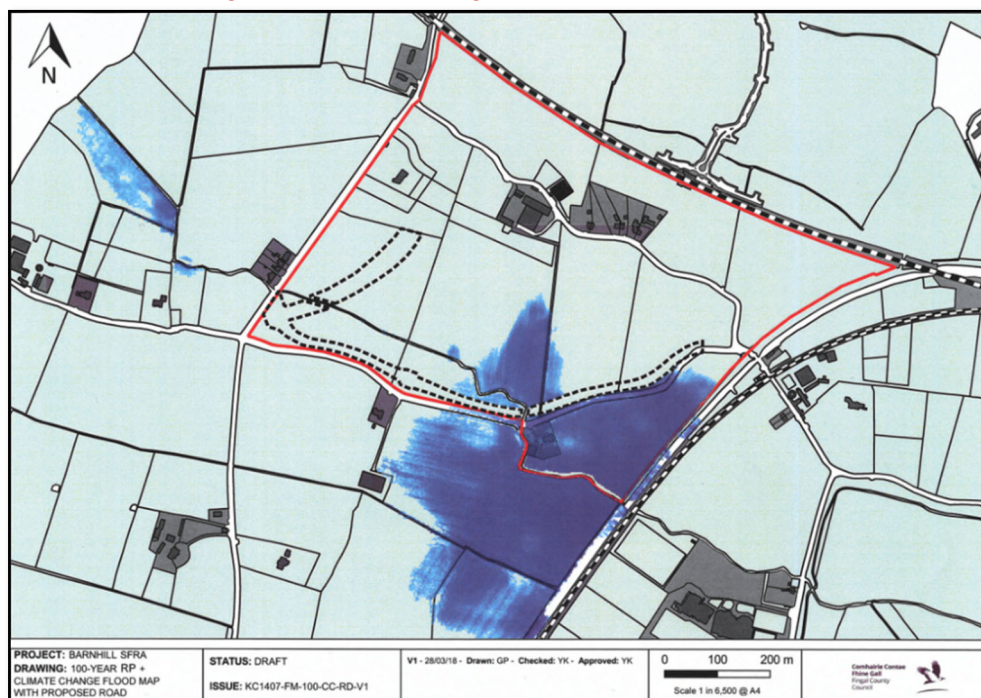


Figure 1: 1% (1 in 100 year) probability of flooding including climate change & future road allowances

The highest predicted flood depths in the 1% (1 in 100 year) probability of flooding event including the allowances for climate change and the future Ongar to Barnhill Distributor Road are between 0.9 and 1.0 metres.

Figure 2, shown below, displays mapping of the 0.1% (1 in 1000 year) probability of flooding including allowances for climate change and the future Ongar to Barnhill Distributor Road.

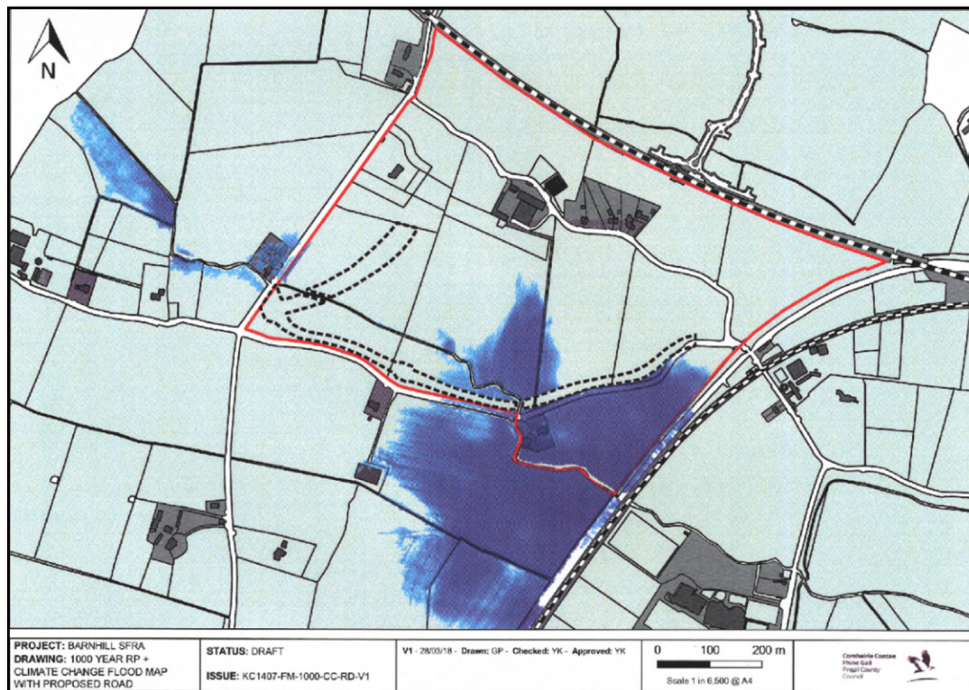


Figure 2: 0.1% (1 in 1000 year) probability of flooding
Including climate change & future road allowances

The highest predicted flood depths in the 0.1% (1 in 1000 year) probability of flooding event are between 1.1 and 1.3 metres including the allowances for climate change and the future Ongar to Barnhill Distributor Road.

3.1.1 Additional Strategic Flood Risk Assessment

An additional Flood Risk Assessment Report was carried out for the Barnhill SHD site by McCloys Consulting on behalf of the Clients, Alanna Homes and Alcove Ireland Four Limited.

“Flood Risk Assessment – Barnhill, Dublin 15” report (June 2022), prepared by McCloys Consulting, accompanies the Barnhill SHD Planning Application.

4 Surface Water Network and Sustainable Urban Drainage Systems (SuDS)

4.1 Existing Surface Water Drainage

There are currently no public surface water drainage networks located within, or immediately adjacent to, the site area designated for the Barnhill SHD. The existing lands are currently used for agricultural purposes and are drained by a series of existing ditches. These existing ditches discharge to the existing Barnhill Stream watercourse that traverses through the southern part of the site.

The existing Barberstown Lane North and Barberstown Lane South Roads are drained by means of ditch channels located at either side of the roads which also discharge to the Barnhill Stream. The existing section of the R149 Regional Road between the Barberstown Lane North and Barberstown Lane South junctions are also drained by ditches which also discharge to the Barnhill Stream.

4.2 Future Receiving Environment Surface Water Drainage

A storm water drainage network shall be constructed as part of the future Ongar – Barnhill Distributor Road and realigned Barberstown Lane South Road, to be constructed as part of the Ongar to Barnhill Distributor Road Scheme by Fingal County Council. This drainage network will be constructed to cater for the surface water runoff generated by the Distributor Road. The surface water network for the future road shall have 3 no. detention basins that have been designed to provide adequate attenuation storage for the predicted runoff from the Ongar to Barnhill Distributor Road for the 1% rainfall event. Additional capacity has been given within these detention basins so that they can accommodate some of the surface water runoff generated by the Barnhill SHD.

The Ongar to Barnhill Distributor Road Scheme surface water network and associated detention basins shall be constructed prior to the commencement of construction works for the proposed development and, therefore, shall be considered part of the future receiving environment of the Barnhill SHD.

4.3 SuDS Constraints

The Flood Risk Assessment carried out by Garland Consultancy determined that flooding within the area is associated with both Pluvial and Fluvial occurrences. Pluvial flooding occurs when the infiltration capacity of the soil and existing drainage infrastructure of the area has been exceeded during periods of intense rainfall. The results of the site investigation (see section 2.3) carried out by Site Investigation Limited (SIL) would also prove this to be the case. This increases the amount of Sustainable Urban Drainage Systems (SuDS) storage capacity area required in the surface water network proposed as very little surface water runoff will dissipate as a result of soil infiltration / percolation.

The existing flooding that is experienced within the proposed parkland area provides an additional constraint in relation to SuDS as it is necessary to locate SuDS measures outside the predicted flood plain so that they may operate more efficiently during extreme storm events.

4.4 Proposed Surface Water Drainage Network and SuDS Strategy

It is proposed to design and construct a surface water drainage system for the Barnhill SHD in compliance with the requirements of the following guidelines:

- The SuDS manual (CIRIA, 2015)
- Greater Dublin Strategic Drainage Study (GSDSDS)

An internal surface water pipe network shall be constructed as part of the proposed development to convey surface water runoff generated by the development to the Barnhill Stream that runs through the south of the site. Typical pipe sizes of the surface water network shall be 225 – 900mm in diameter. This surface water network will be constructed so that surface water runoff is collected from the Sustainable Urban Drainage Strategy (SuDS) source control features of the development and carried to the main SuDS features of the development, from where it will be discharged, at a controlled flow

rate, to the existing stream. The retention of existing hedgerows, trees and ditches allow the site to naturally drain and will assist in conveying stormwater to the newly constructed surface water network elements.

SuDS source controls such as rainwater butts, rain gardens, green / sedum roofs, tree pits, permeable paving blocks / asphalt, underground stormwater arched chamber systems and infiltration trenches are proposed to collect and store surface water runoff at its source before discharging to the sealed main surface water pipe networks across the site.

The main overall SuDS site feature for the development is a proposed infiltration area situated under the proposed playing pitch. This infiltration area has been designed to cater for the attenuation of the vast majority of surface water runoff generated by the proposed development during the more extreme storm events. The design of the infiltration area beneath the proposed playing pitch will allow for the surface of the pitch to drain quickly once a storm event has passed and will allow treated water to be discharged to the existing stream at a controlled rate. The provision of a pond / wetland in the floodplain area of the parkland will create an aesthetic and year-round amenity for the residents of the development to avail of.

The proposed surface water and its ancillary source controls and main SuDS features will be designed so that the surface water runoff generated by the construction of the proposed development will be adequately attenuated without exacerbating any flooding within the site, its surrounding areas or within areas downstream of the site.

As part of the internal surface water network, it is also proposed to install petrol interceptors and silt trap manholes at all of the discharge points to the detention basins and the infiltration area, beneath the proposed playing pitch, to filter out any remaining hydrocarbon pollutants & silt deposits from the development site runoff.

Maintenance of the Surface Water Network and SuDS features proposed as part of the scheme will be carried out in accordance with the Taking in Charge strategy for the development.

Drawing 16_053_046 - Proposed Surface Water Network Layout and Main SuDS Storage Systems, accompanies the Barnhill SHD Planning Application.

Drawing 16_053_047 - Section A-A - SuDS Infiltration Basin and Outfall Details to Wetland Pond, accompanies the Barnhill SHD Planning Application. The location of Section A-A is indicated on Drawing 19_053_046 which accompanies the Barnhill SHD Planning Application.

The Barnhill SHD SuDS Strategy Report, (July 2022), prepared by Clifton Scannell Emerson Associates on behalf of Alanna Homes and Alcove Ireland Four Limited, accompanies the Barnhill SHD planning application.

5 Foul Sewer Network

5.1 Existing Foul / Wastewater Sewer Drainage

There are currently no public foul / wastewater sewer drainage networks located within, or immediately adjacent to, the site area designated for the Barnhill SHD. The existing residential and farm properties situated within the centre of the development site have independent foul sewerage tanks and treatment systems.

5.2 Future Receiving Environment Foul / Wastewater Sewer Drainage

As part of their feasibility study for the proposed Barnhill SHD wastewater connection to their existing sewer in Ongar Road, Irish water have determined that an upgrade of a section of the existing Ongar Road sewer network upgrade is required to be constructed in order to cater for the wastewater generated by the Barnhill SHD. This will require the upgrade of approximately 900m of an existing section of 375mm Ø foul sewer to be increased to 700mm Ø foul sewer.

The upgrade of this section of existing foul sewer on the Ongar Road is required to be completed prior to the commencement of the proposed development and, therefore, shall be considered part of the future receiving environment of the Barnhill SHD. The size of the upgrade is to be agreed, in future, upon Irish Water's completion of their modelling assessment of the existing network.

5.3 Proposed Foul Sewer Network

The proposed foul / wastewater sewer network has been designed with reference to the following guidelines and processes:

- Irish Water document IW-CDS-5030-01 (Revision 4), "Wastewater Infrastructure Standard Details: Connections and Developer Services", July 2020
- Irish Water document IW-CDS-5030-03 (Revision 2), "Code of Practice for Wastewater Infrastructure: Connections and Developer Services", July 2020
- Completion of Irish Water's Pre-Connection Enquiry Application Process (with associated Water Demand and Wastewater Loading estimated calculations attributed to the future proposed development).

The calculated post development average discharge is approximately 585m³/day for the Barnhill SHD, with a post development peak discharge of approximately 1790m³/day. Foul sewerage / wastewater will be collected by means of manholes and underground pipework networks which are to be laid primarily along the internal road networks traversing the development site. Typical pipe sizes of the foul sewer network shall be 225–450mm Ø. The wastewater will discharge via gravity to a proposed pumping station located within the south-east of the site. The proposed pumping station is to be a wet well type arrangement with 6 hours storage capacity at three times the dry weather flow to allow for breakdown of pumps or maintenance works to be carried out. The proposed pumping station is located a minimum of 35m from the nearest residential units within the development in compliance with Fingal County Council Guidelines.

The foul sewerage / wastewater will then be pumped, via a 200mm Ø SDR 17 PE rising main, from the proposed pumping station to the existing services culvert that passes beneath the existing Clonsilla – M3 Parkway Railway line immediately east of Hansfield Train Station. The maximum pumped flow from the site is to be approximately 20 l/s. From here, the foul rising main will connect to a foul rising main discharge manhole constructed within the Hansfield development. This foul effluent will then flow, via gravity, by means of the as constructed internal 375mm Ø Hansfield foul sewer to the existing foul sewer infrastructure located along the existing Ongar Distributor Road, from where it will ultimately discharge to the Ringsend Wastewater Treatment Plant (WWTP). The Ringsend WWTP is currently undergoing upgrade works to increase its capacity and will therefore have sufficient capacity to cater for the foul sewer effluent created by the development.

Drawing 16_053_036 - Proposed Foul Sewer Layout, Foul Pumping Station Location and Indicative Rising Main accompanies the Barnhill SHD Planning Application.

Drawing 16_053_037 - Proposed Foul Pumping Station Layout, accompanies the Barnhill SHD Planning Application.

The Barnhill SHD Pumping Station – Sizing and Design Methodology report, (July 2022), prepared by Clifton Scannell Emerson Associates, accompanies the Barnhill SHD Planning Application.

6 Water Supply Network

6.1 Existing Water Supply and Distribution

At present, there is a 4" Ø uPVC watermain, installed in 1965, that travels through the site along the Barberstown Lane North Road. This watermain continues across the Royal Canal, via Pakenham Bridge, and traverses the existing Dublin to Maynooth Railway Line at the existing Barberstown Lane Level Crossing. This watermain services the existing dwellings and farm buildings located along the Barberstown Lane North Road. There are 2 no. hydrants and 2 no. air valves located on this section of watermain. The site is also serviced by a 4" Ø uPVC watermain, installed in 1965, and a 200mm Ø uPVC watermain, installed in 2004. Also, there is a 4" Ø uPVC watermain, installed in 1965, and a 200mm Ø uPVC watermain, installed in 2004, located within the existing R149 regional road that runs adjacent to the western boundary of the site.#

6.2 Future Receiving Environment Water Supply and Distribution

A 300mm Ø MoPVC watermain is proposed to be installed along the length of the proposed future Ongar to Barnhill Distributor Road and realigned Barberstown Lane South Road, that shall be constructed as part of the Ongar to Barnhill Distributor Road Scheme by Fingal County Council. This proposed watermain is required to service the future Barnhill SHD and will have dedicated spurs to which the development watermains are to be connected to, when required.

The Ongar to Barnhill Distributor Road Scheme watermain shall be constructed prior to the commencement of construction works for the proposed development and, therefore, shall be considered part of the future receiving environment of the Barnhill SHD.

6.3 Proposed Water Supply and Distribution Network

The proposed Water supply and distribution networks for the proposed development have been designed with respect to the following guidelines and processes:

- Irish Water document IW-CDS-5020-01 (Revision 4), "*Water Infrastructure Standard Details: Connections and Developer Services*", July 2020.
- Irish Water document IW-CDS-5020-03 (Revision 2), "*Code of Practice for Water Infrastructure: Connections and Developer Services*", July 2020.
- Completion of Irish Water's Pre-Connection Enquiry Application Process (with associated Water Demand and Wastewater Loading estimated calculations attributed to the future proposed development).

The calculated post development average water demand for the Barnhill SHD is approximately 530m³/day, with a post development peak water demand of approximately 3310m³/day. A proposed internal watermain network is to be constructed to supply the units within the development. This will be connected from the watermain infrastructure installed during the construction of the future Ongar to Barnhill Distributor Road that is to be in place prior to the construction of the Barnhill SHD. Watermain pipes are proposed to range in size from 110 - 225mm Ø.

The watermain network for the proposed development will include fire hydrants located at no more than 46m from any unit as per Irish Water Requirements and subject to agreement with the relevant Fire Authority. The relevant Fire Authority shall be notified in relation to the proposed development during detailed design stage and their fire flow requirements satisfied. All sluice valves, scour valves and air valves shall be designed, sited, and constructed in accordance with Irish Water requirements.

Drawing 16_053_035 - Proposed Watermain Network Layout, accompanies the Barnhill SHD Planning Application.

7 ESB Power Supply Network

7.1 Existing ESB Power Supply Network

At present, there is no existing underground ESB duct infrastructure located within, or immediately adjacent to, the site area designated for the Barnhill SHD. An existing 110kV High Voltage (HV) overhead power line passes over the northwest corner of the site with 2 no. associated pylons located within this area of the site. A pylon was required to be relocated in order to facilitate the future construction of the Ongar to Barnhill Distributor Road Scheme. This pylon and its associated HV overhead power lines were relocated by ESB Networks in 2007.

Also, an existing HV overhead power line traverses the northern part of the site. This power line splits in two near the centre of the site, with one overhead line terminating immediately south of the existing Clonsilla – M3 Parkway Railway Line and passing beneath it via an existing duct arrangement. The other overhead power line runs towards Pakenham Bridge over the Royal Canal and the Barberstown Lane Level Crossing. The existing residential and farm properties situated within the centre of the development site are powered by means of existing Low Voltage (LV) overhead power lines that are fed from the HV overhead power line crossing the northern part of the site.

7.2 Future Receiving Environment ESB Power Supply Network

4x160mm Ø ESB ducting infrastructure is proposed to be installed along the length of the proposed future Ongar – Barnhill Distributor Road and realigned Barberstown Lane South Road, to be constructed as part of the Ongar to Barnhill Distributor Road Scheme by Fingal County Council. This ESB ducting has the potential to service the future Barnhill SHD and will have a number of spurs to allow ESB connections to the internal ESB network within the proposed development.

The Ongar to Barnhill Distributor Road Scheme ESB ducting shall be constructed prior to the commencement of construction works for the proposed development and, therefore, shall be considered part of the future receiving environment of the Barnhill SHD.

7.3 Proposed ESB Power Supply Network

The proposed ESB distribution system of the Barnhill SHD site consists of double substations and unit substations to distribute the LV network throughout the site. The local area HV network adjacent to the site provides ready-made access to the ESB network and will integrate into the Barnhill distribution network seamlessly, without the requirement for large scale excavation or enhancements outside the site boundary.

An existing overhead 10-20kV ESB power line within the northern part of development site is required to be diverted underground as part of the proposed ESB power supply network for the development. The poles associated with this section of existing ESB overhead power line, to be undergrounded, shall be retired as part of the ESB construction works. Further liaison with ESB Networks shall be made to fully ascertain the extent of the overhead ESB infrastructure that will require to be undergrounded. Implementation of the undergrounding works will be adequately planned so as to reduce impacts to power supply to the existing dwellings in the development area.

Drawing 20034-MCE-ZZ-XX-DR-E-001 – ESB Site Services, accompanies the Barnhill SHD Planning Application.

8 Telecommunications Supply Network

8.1 Existing Eir Supply Network and Other Existing Telecommunications Networks

There are overhead Eir telecoms lines located along the northern side of the existing Barberstown Lane North Road. There is no existing underground Eir duct infrastructure located within the site area designated for the Barnhill SHD. Adjacent to the development site, Eir ducts are present within the T50 fibre infrastructure network. The T50 ducts run along the existing R149 Clonee – Leixlip Road to the West of the development site and along the existing R121 Barberstown Lane South Road to the south of the development site.

There are some other fibre broadband / telecommunications service providers with ducts within the T50 fibre infrastructure network. The T50 ducts run along the existing R149 Clonee to Leixlip Road to the West of the Barnhill SHD site and along the existing R121 Barberstown Lane South Road to the south of the development site. Virgin Media, Vodafone and Aurora Fibre Telecoms ducting are among those who have fibre telecoms infrastructure within the existing T50 network.

8.2 Future Receiving Environment Eir Network

It is proposed to install 2x110mm Ø Eir ducts along the length of the proposed future Ongar – Barnhill Distributor Road and realigned Barberstown Lane South Road, to be constructed as part of the Ongar to Barnhill Distributor Road Scheme by Fingal County Council. These proposed Eir ducts have the potential to service the future Barnhill SHD and will have spurs to allow Eir connections to the internal telecoms duct infrastructure within the proposed development.

The Ongar to Barnhill Distributor Road Scheme Eir ducting shall be constructed prior to the commencement of construction works for the proposed development and, therefore, shall be considered part of the future receiving environment of the Barnhill SHD.

8.3 Future Receiving Environment Virgin Media Network

It is proposed to install 2x110mm Ø Virgin Media ducts along the length of the proposed future Ongar – Barnhill Distributor Road and realigned Barberstown Lane South Road, to be constructed as part of the Ongar to Barnhill Distributor Road Scheme by Fingal County Council. These proposed Virgin Media ducts have to potential to service the future Barnhill SHD and will have spurs to allow Virgin Media connections to the internal telecoms duct infrastructure within the proposed development.

The Ongar to Barnhill Distributor Road Scheme Virgin Media ducting shall be constructed prior to the commencement of construction works for the proposed development and, therefore, shall be considered part of the future receiving environment of the Barnhill SHD.

8.4 Proposed Eir Network

The proposed EIR distribution system for the Barnhill SHD site consists of several distribution cabinets throughout the site linking the entire ducted network together. The local EIR network is situated adjacent to the site and can be accessed easily and will give full high-speed fibre services across the site. The local area EIR network adjacent to the site provides readymade access to the EIR network and will integrate into the Barnhill distribution network seamlessly without the need for large scale excavation or enhancements outside the site boundary.

Drawing 20034-MCE-ZZ-XX-DR-E-003 – Eir Site Services, accompanies the Barnhill SHD Planning Application.

8.5 Proposed Virgin Media Network

The proposed Virgin Media distribution system for the Barnhill SHD site consists of several distribution cabinets & nodes throughout the site linking the entire ducted network together. The local Virgin Media network is situated adjacent to the site and can be accessed easily and will give full high-speed services across the site. The local area Virgin Media network adjacent to the site provides readymade access to the Virgin Media network and will integrate into the Barnhill distribution network seamlessly without the need for large scale excavation or enhancements outside the site boundary.

Drawing 20034-MCE-ZZ-XX-DR-E-005 – Virgin Media Site Services, accompanies the Barnhill SHD Planning Application.

9 Proposed Internal Road / Street Network and Pedestrian and Cyclist Movement

Refer to the Traffic and Transport Assessment Report and Mobility Strategy Report, prepared by Clifton Scannell Emerson Associates, on behalf of Alanna Homes and Alcove Ireland Four Limited, that accompanies the Barnhill SHD Planning Application.

10 List of Appendices

- Appendix A - Relevant Document References
- Appendix B - Relevant Drawing References

11 Appendix A – Relevant Document References

The following relevant documents accompany the Barnhill SHD Planning Application:

- “*Flood Risk Assessment – Barnhill, Dublin 15*”, (June 2022), by McCloy Consulting.
- “*RPT-16_053-004, Barnhill SHD – SuDS Strategy Report*”, (July 2022), by Clifton Scannell Emerson Associates.
- “*RPT-16_053-006, Barnhill SHD Pumping Station – Sizing and Design Methodology*” report, (July 2022), by Clifton Scannell Emerson Associates.
- “*RPT-19_121-001, Traffic and Transport Assessment*”, report, (July 2022), by Clifton Scannell Emerson Associates.
- “*RPT-19_121-005, Mobility Strategy*”, report, (July 2022), by Clifton Scannell Emerson Associates.
- “*Barnhill SHD – Stage 1 Road Safety Audit*”, (July 2022), by PMCE.

12 Appendix B – Relevant Drawing References

The following relevant drawings accompany the Barnhill SHD Planning Application:

- 16_053_035 - Proposed Watermain Network Layout.
- 16_053_036 - Proposed Foul Sewer Layout, Foul Pumping Station Location and Indicative Rising Main.
- 16_053_037 - Proposed Foul Pumping Station Layout.
- 16_053_046 - Proposed Surface Water Network Layout and Main SuDS Storage Systems.
- 16_053_047 - Section A-A - SuDS Infiltration Basin and Outfall Details to Wetland Pond.
- 20034-MCE-ZZ-XX-DR-E-001 – ESB Site Services.
- 20034-MCE-ZZ-XX-DR-E-003 – Eir Site Services.
- 20034-MCE-ZZ-XX-DR-E-005 – Virgin Media Site Services.

Clifton Scannell Emerson Associates Limited, Civil & Structural Consulting Engineers
Seafort Lodge, Castledawson Avenue, Blackrock, Co. Dublin, Ireland.

T. +353 1 288 5006 F. +353 1 283 3466 E. info@csea.ie W. www.csea.ie

