



PROJECT TITLE:

ST KEVIN'S STRATEGIC HOUSING DEVELOPMENT
At the former St. Kevin's Hospital and Grounds,
Shanakiel, Cork

CLIENT:

LDA

DOCUMENT TITLE:

M&E Basis of Design

DOCUMENT NUMBER:

C19037-EDC-XX-XX-BOD-ME-0001

Rev.	Status	Date	Originator	Checker	Approved By
P01	Issued for Planning	06.11.2020	DOC / SL	ROF	ROF
P02	Issued for Planning	02.12.2020	DOC / SL	ROF	ROF
P03	Issued for Planning	03.12.2020	DOC / SL	ROF	ROF
P04	Issued for Planning	07.12.2020	DOC / SL	ROF	ROF

TABLE OF CONTENTS

1	RENEWABLES/ NZEB (NEARLY ZERO-ENERGY BUILDINGS)	4
1.1	Hierarchy of Design Considerations for Energy Performance	4
1.2	Building Performance Standards	4
2	MECHANICAL SERVICES	5
2.1	Incoming Services	5
2.1.1	Incoming Water	5
2.2	Water Services	5
2.2.1	Townhouse & Duplex Water Services	5
2.2.2	St Kevin’s Apartment Water Services	6
2.3	Ventilation Services	7
2.3.1	Townhouse & 3/4 Bed Duplex Ventilation Services	7
2.3.2	Apartment & 2 Bed Duplex Ventilation Services	8
2.4	Heating Services	8
2.4.1	Townhouse & 3/4 Bed Duplex Heating Services	8
2.4.2	Apartment & 2 Bed Duplex Heating Services	9
2.5	Above Ground Drainage Services	9
2.6	Smoke Ventilation	10
2.7	Fire Protection	10
3	ELECTRICAL SERVICES	11
3.1	Incoming Services	11
3.1.1	ESB	11
3.1.2	Open Eir & Virgin Media	12
3.2	LV Electrical Supply	12
3.3	Cabling	12
3.4	Containment	12
3.5	Small Power	13
3.6	External/Street Lighting	14
3.7	General Lighting Systems	14
3.8	Emergency Luminaires and Lighting Controls	15
3.9	Fire Detection and Alarm Systems	15
3.10	Closed Circuit Television Systems	16
3.11	Heating & Ventilation	16
3.12	Television Distribution Systems	16
3.13	Access Control Systems / Audio Intercom System	16

EXECUTIVE SUMMARY

This document is an outline proposal of the M&E scope for the proposed residential development project at the former St. Kevin's Hospital and Grounds, Shanakiel, Cork

The intention is to provide the client with a scope of the M&E services for broad agreement to form the basis of design.

The proposals enclosed are subject to detail design, and compliance with building regulations.

1 RENEWABLES/ NZEB (NEARLY ZERO-ENERGY BUILDINGS)

Nearly Zero-Energy Buildings, or NZEB is required under the Energy Performance of Buildings Directive. New buildings owned and occupied by Public Authorities after 31st December 2018 must comply with NZEB, and from 31st December 2020, all new buildings will be required to be NZEB.

The existing St Kevin's building is a protected building where the existing façade, windows etc. must be retained/restored. This limits the facades U-Value and the buildings air tightness which in turn have a knock-on effect to the overall energy efficiency of the building. Due to these factors it is stated in Part L that a protected building does not have to meet the minimum requirements of Part L but the aim should be to improve the energy efficiency as far as is reasonably practicable.

1.1 Hierarchy of Design Considerations for Energy Performance

The hierarchy of design considerations for reducing energy use and increasing efficiency in buildings should be as follows:

1	Building envelope design	Maximise energy conservation through optimal u-values, avoidance of thermal bridging, analysis of thermal capacity, and improved air tightness levels
2	Mechanical, electrical and plumbing strategy	Optimise MEP strategy to provide efficient energy transfer, distribution and control
3	Low to zero carbon technologies	Employ practical energy systems to supplement energy demand

The energy performance objectives for this development will be achieved primarily through a combination of fabric first "passive measures", for example, high insulation and air tightness standards. The MEP systems will then be designed to ensure maximum efficiency, consistent with the lowest possible capital, operating and maintenance costs.

1.2 Building Performance Standards

We have outlined below the minimum performance standards for set out in TGD Part L (2019) of Building Regulations. Based on our analysis of similar buildings recently commissioned, we have also outlined good practice performance targets and appropriate MEP schemes which should be considered for the new residence.

Minimum and proposed standards for NZEB/Part L 2019			
Element	Units	Part L Backstop	Good practice
Building Envelope			
Fabric U-Values:			
External wall	W/m ² K	0.18	0.16
Pitch/flat roof	W/m ² K	0.16/ 0.20	0.13
Ground floor	W/m ² K	0.18	0.13

Windows	Thermal (W/m2K)	1.40	1.20
	Solar factor (Fraction)	0.40	0.40
	Light transmission (Fraction)	0.71	0.71
Air permeability	m3/hr/m2 @ 50 Pa	5.00	3.00
Thermal bridging at junctions	Meet or exceed standards set out in table C2 of TGD Part L 2019		

2 MECHANICAL SERVICES

2.1 Incoming Services

2.1.1 Incoming Water

A new mains water supply for the development will be routed along the proposed footpath as per the civil engineer’s design proposals. The watermain pipework will be coordinated with other underground services such as electrical supply, telecoms, and drainage services which are required to service each dwelling in the development. This coordination will be required across multiple disciplines to ensure that there are no delays or issues during the construction period.

Each dwelling shall have their own water meter located in an area accessible to the water utilities company for ease of meter reading. The mains water pipework will be routed in such a way that it pops up from below ground within the confines of the building’s walls where it can be isolated and feed the kitchen sink providing potable water for the dwelling. After the isolation valve, the pipework will need to be joined to the preinstalled pipework within the dwellings modules which will be routed to the cold-water storage tank located in the within the services cupboard.

For St. Kevin’s apartments A new incoming mains pipe will be required to supply a new cold water storage tank in the new plant room. The water storage tank shall have its own booster pump set to provide a boosted water supply to each apartment.

2.2 Water Services

2.2.1 Townhouse & Duplex Water Services

Incoming mains water supplies to each duplex and townhouse shall feed a packaged combination cold water storage tank and booster pump local to each dwelling. Cold water shall be distributed throughout the dwellings supplying the following:

- Heat pumps for hot water generation
- Wash hand basins & sinks
- Toilets
- Showers / Baths
- Dishwashers
- Washing machines



Typical Combined Cold Water Storage Tank & Booster

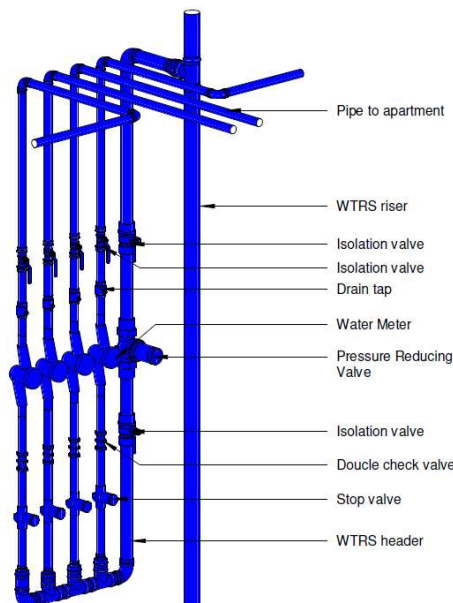
Hot water outlets shall be served from either an Exhaust Air Heat Pump (EAHP) for the duplexes, and and Air to Water Heat Pump (AWHP) local to each dwelling. The heat pumps shall be fed from a pressurised water system. The hot water temperature in the cylinder shall be set at 50°C and will be boosted to 60°C once a week for legionnaires protection. Hot water outlets at WHBs and showers will be fitted with TMV2's set to 43°C to eliminate the risk of scalding.

Water flow reducers should be utilised on all wash hand basins providing a saving on water consumption for hand washing compared with flows from conventional taps. These shall also provide an energy saving by reducing the hot water consumption.

2.2.2 St Kevin's Apartment Water Services

A new incoming mains pipe will be required to supply a new cold water storage tank in the new plant room. The water storage tank shall have its own booster pump set to provide a boosted water supply to each apartment. The pipework will be routed from the plant room at high level and distributed to each of the core's risers.

Within each riser there will be a rising main water pipe from ground floor up to the top level of that area of the building, from which a header pipe will be connected at each floor. This header will have an individual metered pipe feed to each apartment within the floor thee riser is serving. Figure below is a schematic detail of the cold/mains water services riser.



Typical 3D Riser Detail

This cold/mains water distribution and metering detail is a considerably more practical route than installing all apartment meters in a single location at ground level for example, as in doing so the quantity of pipes and spatial requirements in risers would increase significantly.

Meters in the corridors are easily accessible through a set of riser doors should they need to be accessed physically to take readings or carry out maintenance.

Having the meters accessible in corridors eliminates the need for personnel to enter tenants' apartments or gain access to high level meters above the ceiling.

Hot water outlets shall be served from an Exhaust Air Heat Pump (EAHP) local to each apartment. The EAHPs shall be fed from a pressurised water system. The hot water temperature in the cylinder shall be set at 50°C and will be boosted to 60°C once a week for legionnaires protection. Hot water outlets at WHBs and showers will be fitted with TMV2's set to 43°C to eliminate the risk of scalding.

Water flow reducers should be utilised on all wash hand basins providing a saving on water consumption for hand washing compared with flows from conventional taps. These shall also provide an energy saving by reducing the hot water consumption.

2.3 Ventilation Services

2.3.1 Townhouse & 3/4 Bed Duplex Ventilation Services

Demand Control Ventilation (DCV) is to be installed in all townhouses and 3 or 4 bed dwellings across the development.

DCV provides the occupants with the right amount of fresh air, by assessing the room conditions, removing stale and humid air. This provides a high level of comfort to the occupant through a very efficient system.



Typical Demand Control Ventilation Fan

Extract airflow rates are regulated by humidity-controlled terminals, according to ambient humidity level. This is a highly efficient solution to ventilate the home.

Extract rates will be to TGD Part F. Replacement air will be provided by background ventilators or trickle vents sized by the architect in accordance with guidance of TGD Part F. Background ventilation can be through an outside wall or included in the window package. Purge ventilation to TGD Part F will be achieved through openable windows, with aperture areas provided not less than 5% of the room floor area in each case.

The DCV fan will be located within the attic space in each dwelling from where ductwork will be distributed and concealed within the ceiling void, to each extract air valve.

2.3.2 Apartment & 2 Bed Duplex Ventilation Services

Each apartment and 2 bed duplex ventilation requirements will be met through the installation of an Exhaust Air Heat Pump (EAHP). The air within the wet rooms; kitchen, bathrooms, ensuites, and utilities cupboards, is drawn in through the extract ductwork back to the EAHP unit and is passed through a heat exchanger to provide space heating and hot water for the apartment.

The exhaust air is expelled through a vent located above the windows to outside. Fresh air is to be drawn into the apartment's habitable rooms via window vents. This acts as the supply to the apartment. The ventilation system is a continuous extract system and will adhere to the minimum requirements set down in Technical Guidance Document Part F.

The exhaust air heat pump will be located within the utility's cupboard in each apartment from where ductwork will be distributed and concealed within the ceiling void, to each air valve.

A ducted system will be provided from the cooker hood to external.



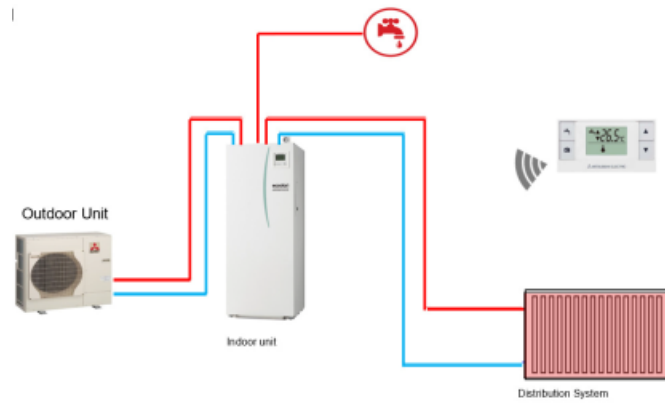
Typical Exhaust Air Heat Pump

2.4 Heating Services

2.4.1 Townhouse & 3/4 Bed Duplex Heating Services

The heating source for each townhouse and 3 or 4 bed duplexes will be by an Air to Water Heat Pump (AWHP) system. The AWHP system comprises of an external outdoor unit feeding and internal combined heat exchanger and storage cylinder unit that provides space heating and domestic hot water to the dwelling.

The proposed air to water heat pump supplies low temperature hot water to the dwelling radiators. The heat pump will also provide hot water to a built-in water



Typical Air to Water Heat Pump Ventilation

Radiators shall be provided to deliver heat to the apartments. Each radiator shall be provided with a thermostatic radiator valve and a lockshield valve. The sizing of the radiators will be adjusted to suit the lower flow temperature of the space heating.

2.4.2 Apartment & 2 Bed Duplex Heating Services

The heating source for each apartment and 2 bed duplex will be by an Exhaust Air Heat Pump (EAHP) system. The EAHP system is a unit that provides space heating and domestic hot water, as well as ventilation.

The proposed exhaust air heat pump supplies low temperature hot water to the apartment radiators. The heat pump will also provide hot water to a built-in water tank. The hot water is produced by a heat exchange with the extracted warm air from the apartment wet rooms.

Features of the EAHP unit:

- Pre plumbed hot water cylinder with pre-insulated cylinder to minimise heat loss.
- Colour display with simple control that allows scheduling and operation of the unit easily.
- Energy efficient unit boasting a domestic hot water and space heating efficiency above 200% and 400% respectively.
- Pre-assembled unit with all ancillary equipment built onto the unit. (expansion vessels, pumps, PRVs, etc.)

Radiators shall be provided to deliver heat to the apartments. Each radiator shall be provided with a thermostatic radiator valve and a lockshield valve. The sizing of the radiators will be adjusted to suit the lower flow temperature of the space heating.

2.5 Above Ground Drainage Services

The soils and wastes installation throughout shall be required to comply with Part H of the Building Regulations and EN12056:2 based on a system type III with unvented branch connections.

Risers are required to route soil vent pipes for kitchen, bathroom, ensuite, and utility cupboards within each dwelling/apartment, which will need to be accessible for rodding within each riser. All waste stacks to be terminated at roof level where possible.

2.6 Smoke Ventilation

Openable vents are required in the St Kevin's apartments to achieve the required smoke clearance on protected corridors allowing means of escape. In the event the necessary openable area is not achievable, and depending on the project fire strategy, a smoke vent shaft may be required. This can be mechanical or natural. A vertical shaft of minimum cross-sectional area of 1.5m^2 is required for natural vent, and as low as 0.65m^2 for a mechanical solution, manufacturer depending. Where a mechanical solution is adopted, then a standby power supply is normally required.

2.7 Fire Protection

Dry Risers are required in the St Kevin's apartments as indicated on the layouts and are located within dedicated firefighting risers with landing valves located at each floor level.

3 ELECTRICAL SERVICES

3.1 Incoming Services

3.1.1 ESB

Two new ESB unit subs shall be located at both the north and south end of the proposed site. This shall be fed from a route to be decided in conjunction with the ESB. Two MV cable ducts will run up through the site providing a connection between both unit subs. The approximate ESB unit sub locations are highlighted below.



3.1.2 Open Eir & Virgin Media

The Open Eir supply will be taken from an existing point at the entrance to the south of the site. The Virgin Media supply point is to be determined by Virgin Media. It is proposed to supply each house or housing unit with access to both Eir and Virgin media supplies. This can be done by supplying the development with a comprehensive ducting and network layout of both supplies providing for access or connection to these services at a later date to be at the discretion of the future tenant.

3.2 LV Electrical Supply

Apart from the apartments within the existing St.Kevins Hospital site the rest of the development shall be individually metered at each unit. An ESB Metering Cabinet shall be mounted within the external wall of each unit. This shall be accessible to the ESB 24 hours a day. These metering panels will be supplied from ESB Mini Pillars which will be located locally.

The apartment block within the old St.Kevins Hospital site shall contain a central metering room and switchroom within the development. This will provide power to each individual unit and will allow each unit to be metered individually.

Each individual unit shall have its own domestic type distribution board. These shall be fed from the ESB metering panels for each individual units and from the main switchroom in the St.Kevins development.

Within St.Kevins each unit will be supplied from the LV switchroom along with all landlord and common areas within the building.

3.3 Cabling

All power cables to be CPR compliant Dca.

Sub-mains cables and externally ran cables (power to external heat pump) shall generally be multicore Cu XLPE/SWA/LSZH.

Cables within all apartment/housing units to be generally Twin and Earth PVC Cable and shall be generally 1.5mm² for lighting and 2.5mm² for sockets. Cables to all cookers/hobs to be 6mm² and cables to electric showers to be 10mm².

Cables supplying fire alarm installations shall be 1.5mm² and have a suitable fire rating. Fire cabling within domestic installations should contain an interconnecting core.

Cables serving essential supplies and life safety equipment shall be fire rated in accordance with ETCI National Rules for Electrical Installations. e.g. FP600S, FTP120, XLPE/LSZH/SWA/LSZH cable.

3.4 Containment

Within the individual units throughout the site, containment shall be of domestic type Hilti clips to allow neat running of the cables throughout the house/apartment.



uPVC conduit should be used for cables when coming down walls to socket/switch outlets etc.

In the old St.Kevins Hospital site cables will be supported and contained within cable management system comprising of:

- MDRF Galvanised steel ladder and tray for sub mains cabling,
- Galvanised steel trunking or MDRF tray for lighting and general services
- MDRF Galvanised steel tray for Fire Detection Alarm Systems
- MDRF Galvanised steel tray/basket for ELV cabling (ICT, Wi-Fi, CCTV, Voice Alarm, Intruder Alarm)

The electrical containment system shall be concealed when run within the ceiling and floor void, the shall be surface when run within the electrical risers.

3.5 Small Power

All circuits will be designed in accordance with the ETCI National Rules for Electrical Installations 4th Edition (ET101:2008).

A metal nonferrous distribution board shall be located within the entrance hallway or the living/kitchen area, wherever a suitable location exists that caters for 1.2m clear space in front of the board.



All sockets and switches shall be white MK logic switches and sockets (or equivalent).

Each unit has been provided with the electrical provision for both a washing machine and a dryer. These are located in utility rooms where possible and if not were located in the kitchen and are provided with isolating switch at above counter level in an easily accessible location.

Each kitchen contains the electrical supply for an electrical oven/hob, microwave, dishwasher, extractor hood and fridge freezer. All of these shall be provided with an isolator switch above counter level and will be easily accessible.

Socket outlets next to the bedhead and studio desk shall incorporate a USB outlet apart from those in the Walk Up apartments in Blocks S, T & U and St.Kevins Hospital building.

Socket outlets will be provided for in all circulation areas of the apartments/houses.

Bedrooms will generally have a socket outlet on both sides of the bed and a third socket located in the room. Double rooms where wall spaces allow have been provided with a socket outlet next to a tv point on the wall adjacent to the bed.

Ensuites shall have power for electric showers where applicable and controlled via a pull chord switch located within the bathroom. All bathrooms are provided with a shaver socket outlet.

Within the front of house areas all light switches and sockets etc. shall be brushed stainless steel MK electric switches and sockets (or equivalent). These shall have a black insert as shown in the image below.



3.6 External/Street Lighting

Street lighting is provided throughout the development in line with Cork City Public Lighting Guide. Light fittings utilised are on the Cork City Councils approved list of fittings

All lighting shall be “White” light and shall be 3000/4000K. All luminaires which shall be selected shall be LED and minimum IP65 rated.

External exits from the St. Kevins building shall be provided with an emergency LED luminaire.

External lighting shall be controlled via a combination of a photocell and time clock with local override switch (Hand/Off/Auto).

3.7 General Lighting Systems

The general lighting installation shall be wholly LED.

Kitchen/Living areas shall be provided with a pendant over the dining and living areas and recess lighting in the kitchen area along with an LED strip under the kitchen cabinet that will be switches locally with a 1 gang 1-way switch under the kitchen cabinet. The kitchen lights in the St.Kevins Hospital site and the walk up apartments in block S, T & U will contain 2D LED fittings in place of the recess lights. All the kitchen areas shall be switched from the main entrance door from a 3 gang switch with the possibility of 2-way switching dependant of the layout of the apartment/house.

Pendant type fittings shall be used throughout all the units in the corridor, store and bedroom areas.

Switching in the stores shall be done via a switch inside the door of the store. Switching in the hallways shall be 2 way from the bottom of the stairs to the top and an intermediate switch for an extra switching point where necessary depending on the layout. There will be a switch inside the main entrance door to the house/ apartment switching the hallway lights.

The bedrooms shall be switched with a 1 gang 2-way switch from the entrance door of the bedroom and on the side of the bedhead which is furthest from the door. Where switch at the entrance to the room is readily accessible from the bed then this shall suffice and no 2-way switching will be required.

All bathrooms shall be switched from outside the bathroom door with recessed IP rated lighting within the bathroom areas. In the bathrooms in the walk up apartments and St,Kevins Hospital site there will be IP rated bathroom globes used instead of recess lighting.

There shall be external IP rated lights over the main entrance door and in the external balcony/terrace areas. These will be switched from a local switch just inside the door over which the luminaires are located.

Switching in the corridors/stairs of the common areas of the St.Kevins apartments shall be via fully functioning programmable microwave/PIR detectors. Cleaner cupboards, toilets and stairs shall be switched via local PIR detectors complete with time adjustment.

All areas inside the houses/apartments and for the external lights over doors shall be a 'warm' light colour (3000K). All common areas (corridors/stairwells) in the St.Kevins Hospital development shall be 4000K.

3.8 Emergency Luminaires and Lighting Controls

Emergency lighting will be provided in the common areas of the apartment building to meet the requirements of I.S.3217-1:2013 standards. We propose to install a fully addressable standalone luminaire, self-test system. This shall be supervised, tested and monitored from a central location (facilities office). It negates the necessity for a maintenance engineer to physically/visually check all emergency luminaires on a weekly basis.



Standalone emergency luminaires

Illuminated pictorial exit signage shall be provided along escape routes and over exit doorways, to accord with the requirements of the architect, building control and fire officer. The pictorial exit signage shall also be 3 hour-maintained type and shall incorporate LED's.

3.9 Fire Detection and Alarm Systems

The scheme shall be designed to IS: 3218-2013 and shall be fully compliant with the Fire Strategy document and Fire Cert.

The fire alarm system shall be a domestic type interconnected system. Protection shall be provided in all habitable rooms – bedrooms, kitchen/living area, corridors and utility rooms. There shall be a smoke detector with a built-in sounder throughout the units apart from the kitchen where a heat detector will be present, On all balconies a strobe sounder will be installed.

In the St.Kevins apartment building the fire alarm system shall be a fully addressable type system. A main fire alarm panel shall be located within the ground floor lobby. The domestic systems located within the apartment units shall be connected to the landlord fire alarm system via a I/O interface to allow for the system to alert the entire building if a fire should occur in one of the apartments. There will be a sufficient number of landlord fire alarm sounders located within the individual units along with a strobe indicator over the entrance to the apartment to allow fire fighters to distinguish which apartment the fire is occurring.

The detection shall be located so to provide coverage as described in IS: 3218 utilising addressable heat/optical smoke, the system shall be complete with sounder, VAD bases, standalone sounder/VAD units (as required), manual call points, interface units (smoke extract vents/windows etc.).

Fire alarm interface units shall be provided for lift installations, mechanical plant, gas shut off valves, automatic opening vents (AOV's) and door access controls, door holders, smoke dampers, mechanical smoke ventilation control panels/actuators.

Corridors shall be fitted with door hold open devices if so required by the fire officer

3.10 Closed Circuit Television Systems

An IP based, auto switch colour/monochrome, CCTV system will be installed discreetly both internally and externally in the St. Kevin's building at strategic positions around the property. The DVR and Monitor shall be located in the ICT cabinet in the main comms room.

Digital Network Video Recorders 30 days recording of all cameras recording shall be provided and located in the ground floor server room data cabinets,

In the event of a power failure the CCTV system shall be provided with a UPS unit providing 30 minutes battery backup to the CCTV system.

CCTV coverage shall be to the following areas but not limited to:

- Circulation Areas
- External Circulation Area
- Reception Area
- Main Entrances
- Building Facade

3.11 Heating & Ventilation

In each individual unit there shall be power for a central extract system. This shall be suitably located and co-ordinated with the layout of the mechanical services. There shall also be power in the kitchen areas of the units for an extract hood over the hob.

For the heating in the apartment/housing units there will be power for a heat pump internally along with a 2kW immersion. There will also be an 32A isolator left externally for the connection of the Heat Pump.

3.12 Television Distribution Systems

We would propose TV points to the following locations:

- 1 per bedroom double
- 1 per living area

3.13 Access Control Systems / Audio Intercom System

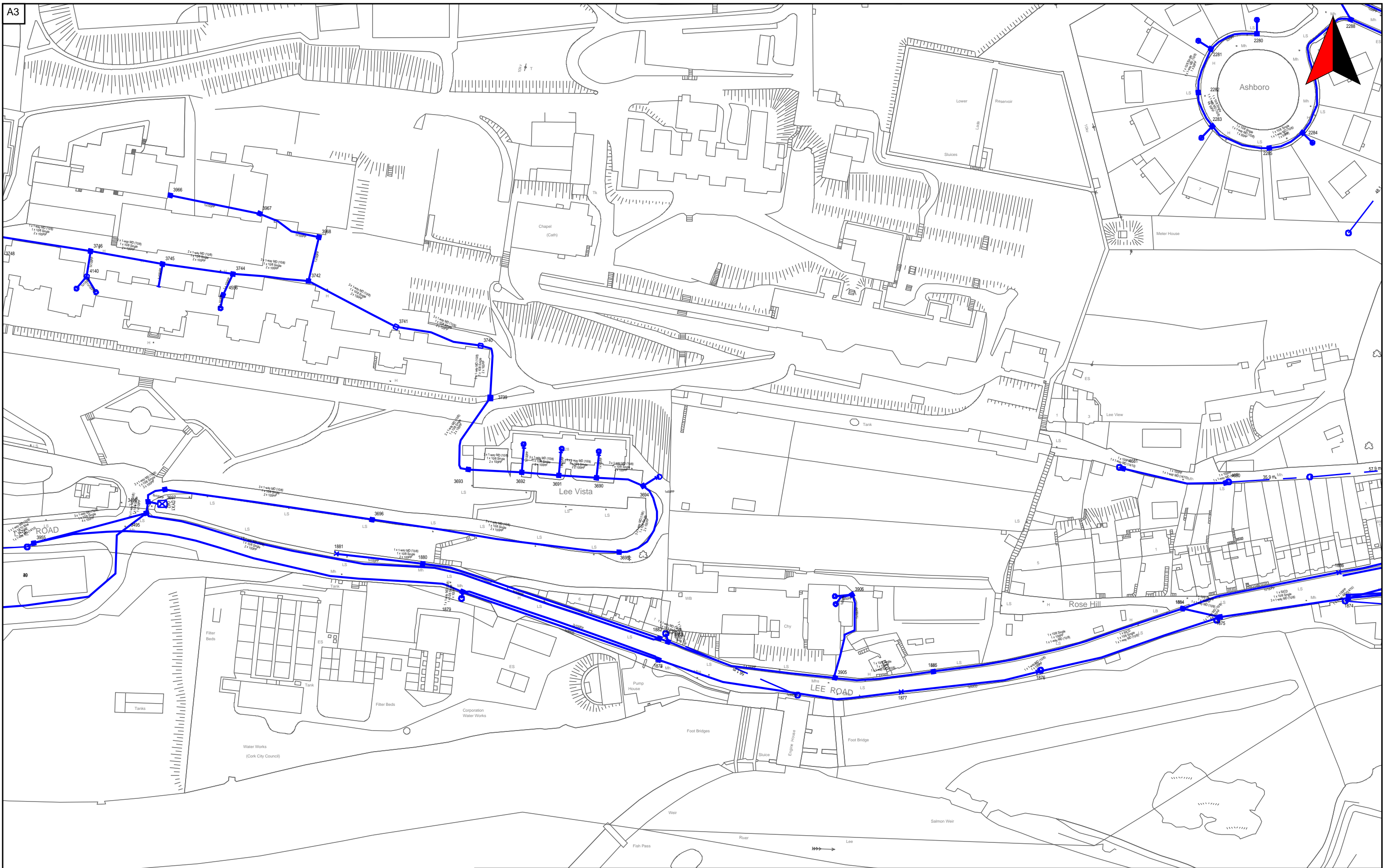
An access control system shall be provided for the St. Kevins apartment accommodation building

A door entry system shall be located at the main entry points to St.Kevins building. Residents of the St.Kevins building shall access the building via a keypad. For all the individual units a doorbell shall be provided with a chime located at either the main circulation area or the kitchen/living area.

Residents shall have proximity cards / fob readers to gain access to the site and into the apartment building. The access control system shall have different level of access granted to the cards to allow different levels of entry around the site. Cards / fob shall be programmed from the main reception.

APPENDIX A

EXISTING UTILITIES DRAWINGS



PLANT REQUESTED FROM [eircom emaps CBYD SERVICE](https://cbyd.emaps.eircom.ie/)

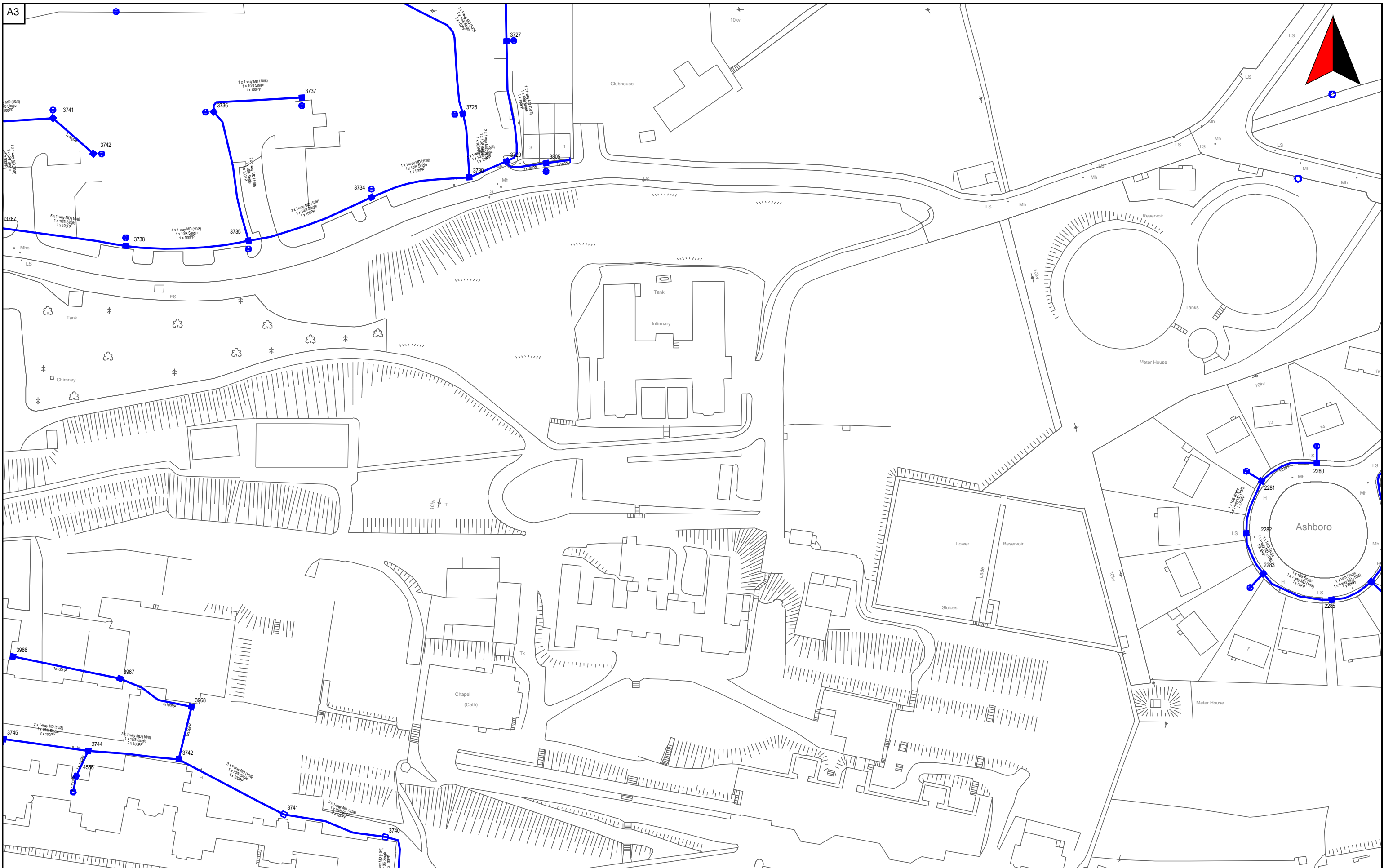
Scale: 1:1500
Date: 06/11/2020

Irish National Grid Co-Ordinates
Centre XY: 164941 m, 71573 m
emaps CBYD

THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL AND SHOULD NOT BE DISCLOSED TO ANY THIRD PARTY WITHOUT THE EXPRESS WRITTEN CONSENT OF eircom LTD. THE DRAWING IS NOT TO BE PHOTOCOPIED OR REPRODUCED IN ANY WAY

THE INFORMATION GIVEN IS COMPILED FROM RECORDS AND IS BELIEVED TO BE CORRECT. THERE MAY, HOWEVER, BE DEPARTURES FROM THE COURSE[S] AND DEPTH[S] SHOWN OR INDICATED. THERE MAY ALSO BE ITEMS OF eircom PLANT OF WHICH NO RECORDS IN HELD. THE INFORMATION IS GIVEN WITHOUT PREJUDICE TO THE LEGAL RIGHTS OF eircom LTD. TO COMPENSATION SHOULD eircom PLANT BE DAMAGED.





PLANT REQUESTED FROM eircom emaps CBYD SERVICE

<https://cbyd.emaps.eircom.ie/>

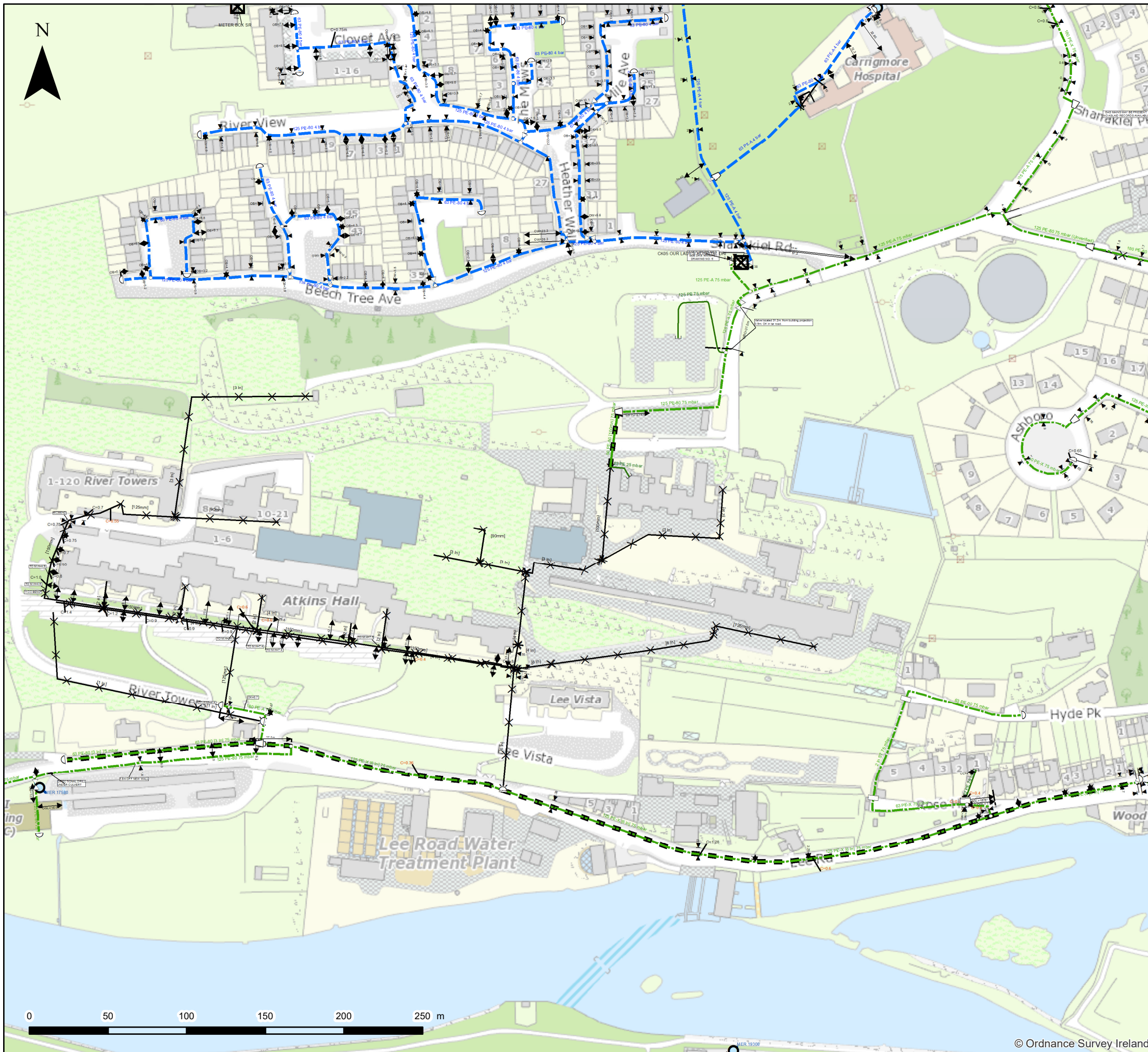
Scale: 1:1250	Irish National Grid Co-Ordinates Centre XY: 164961 m, 71764 m
Date 06/11/2020	emaps CBYD

THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL AND SHOULD NOT BE DISCLOSED TO ANY THIRD PARTY WITHOUT THE EXPRESS WRITTEN CONSENT OF eircom LTD. THE DRAWING IS NOT TO BE PHOTOCOPIED OR REPRODUCED IN ANY WAY

THE INFORMATION GIVEN IS COMPILED FROM RECORDS AND IS BELIEVED TO BE CORRECT. THERE MAY, HOWEVER, BE DEPARTURES FROM THE COURSE[S] AND DEPTH[S] SHOWN OR INDICATED. THERE MAY ALSO BE ITEMS OF eircom PLANT OF WHICH NO RECORDS IN HELD. THE INFORMATION IS GIVEN WITHOUT PREJUDICE TO THE LEGAL RIGHTS OF eircom LTD. TO COMPENSATION SHOULD eircom PLANT BE DAMAGED.



Ordnance Survey Ireland Licence No EN 0007904
Copyright Ordnance Survey Ireland and Government of Ireland



Important Safety Notice: Damage to gas pipelines can result in serious injury or death. Gas network information is provided as a general guide. The exact location and depth of medium or low pressure distribution gas pipes must be verified on site by carrying out necessary investigations, including, for example, hand digging trial holes along the route of the pipe. Service pipes are not generally shown but their presence should always be anticipated.




High pressure transmission pipelines are shown in red. If a transmission pipeline is identified within 10m of any intended excavations then work must not proceed before GNI has been consulted. The true location and depth of a transmission pipeline must be verified on site by a representative of GNI. Contact can be made through 1850 427 747.


All work in the vicinity of the gas network must be completed in accordance with the current edition of the Health and Safety Authority publication, 'Code of Practice For Avoiding Danger From Underground Services' which is available from the Health and Safety Authority (1890 289 389) or can be downloaded at www.hsa.ie.

Legal Notice: Gas Networks Ireland (GNI) and its affiliates, accept no responsibility for the accuracy of any information contained in this document including data concerning location and technical designation of the gas distribution and transmission network (the "Information"). The Information should not be relied on for accurate distance or depth of cover measurements.











Any representations and warranties, express or implied, are excluded to the fullest extent permitted by law. No liability shall be accepted for any loss or damage including, without limitation, direct, indirect or consequential loss, arising out of or in connection with the use or re-use of the information.



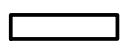

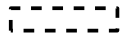








Reproduced from the Ordnance Survey by permission of the Government. Licence No. 3-3-34

 Aurora Telecom Duct
 Aurora Telecom Sub Duct
 Aurora Telecom Inserted Gas Pipe



Aurora Telecom Queries - 01-8926166 (Office Hours)
 Aurora_Network_Queries@gasnetworks.ie
 Aurora Telecom Emergency Only 1850 427399 / 01 2030120

 Transmission Pipe (High Pressure)
 Transmission Pipe (Construction Issue)
 Distribution Pipe (Medium Pressure)
 Distribution Pipe (Low Pressure)
 Service Pipe (Medium Pressure)
 Service Pipe (Low Pressure)
 Strategic Pipe (Medium Pressure)
 Strategic Pipe (Low Pressure)
 Inserted
 Abandoned Pipe

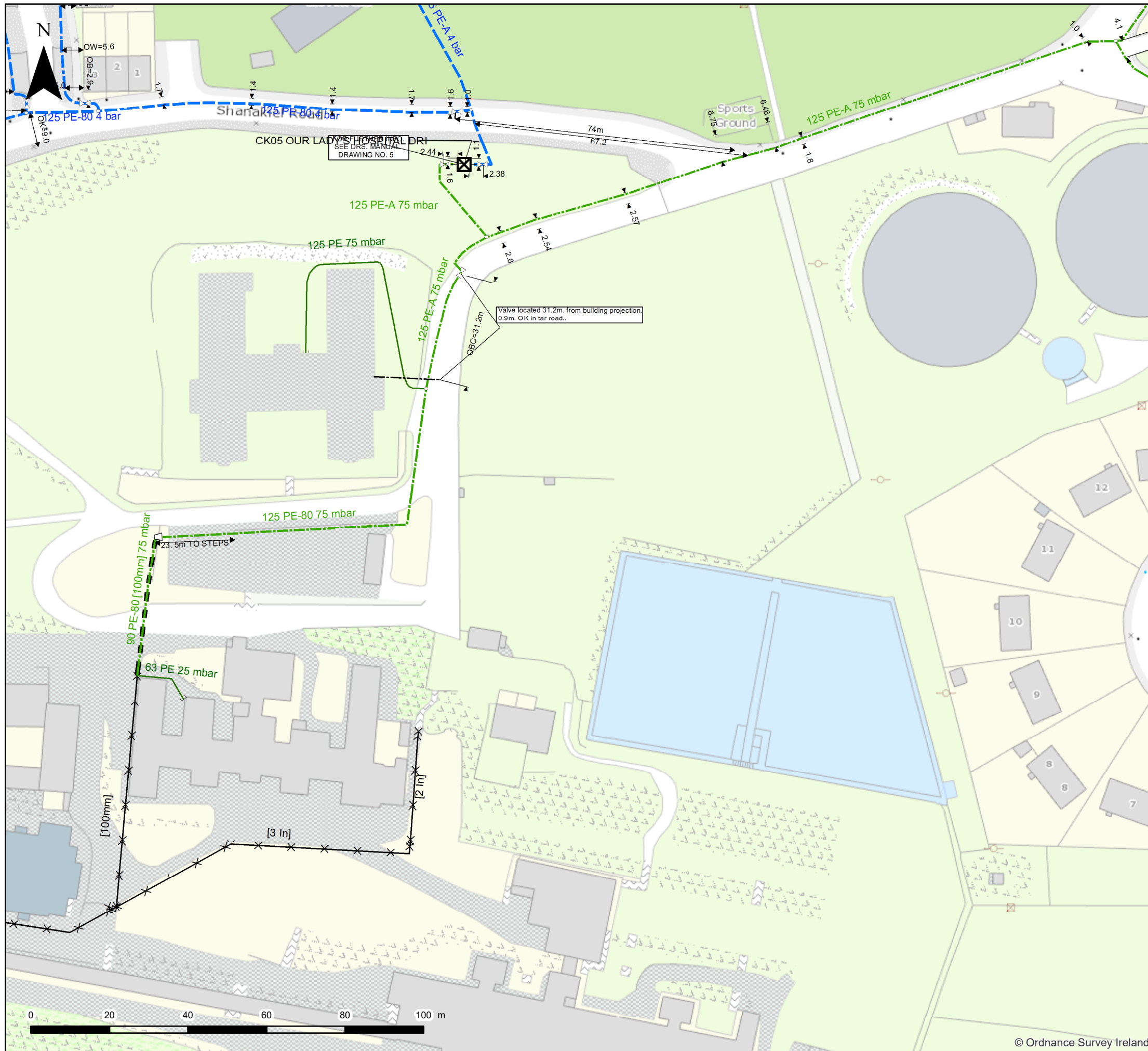
C=?	Cover (depth in metres)		Pressure Monitor
	CP Test Point		Protection (Slabbing)
	End Cap		Protection (Sleeve)
	Hot Tap		Reducer
	Installation		Service Terminator
	Valve		Tee
	Mains Verification**		Transition

** Please contact GNI on 1850-427747 for specific information




GAS NETWORK INFORMATION

Description:	
Location:	564851,571759
Plot Date:	13/02/2020 08:51
Scale:	2500 @ A3
Plotted By:	665
Ref ID:	665_13022020085130



Important Safety Notice: Damage to gas pipelines can result in serious injury or death. Gas network information is provided as a general guide. The exact location and depth of medium or low pressure distribution gas pipes must be verified on site by carrying out necessary investigations, including, for example, hand digging trial holes along the route of the pipe. Service pipes are not generally shown but their presence should always be anticipated.

High pressure transmission pipelines are shown in red. If a transmission pipeline is identified within 10m of any intended excavations then work must not proceed before GNI has been consulted. The true location and depth of a transmission pipeline must be verified on site by a representative of GNI. Contact can be made through 1850 427 747.


All work in the vicinity of the gas network must be completed in accordance with the current edition of the Health and Safety Authority publication, 'Code of Practice For Avoiding Danger From Underground Services' which is available from the Health and Safety Authority (1890 289 389) or can be downloaded at www.hsa.ie.

Legal Notice: Gas Networks Ireland (GNI) and its affiliates, accept no responsibility for the accuracy of any information contained in this document including data concerning location and technical designation of the gas distribution and transmission network (the "Information"). The Information should not be relied on for accurate distance or depth of cover measurements.

Any representations and warranties, express or implied, are excluded to the fullest extent permitted by law. No liability shall be accepted for any loss or damage including, without limitation, direct, indirect or consequential loss, arising out of or in connection with the use or re-use of the information.

Reproduced from the Ordnance Survey by permission of the Government.
Licence No. 3-3-34

— Aurora Telecom Duct
— Aurora Telecom Sub Duct
— Aurora Telecom Inserted Gas Pipe



Aurora Telecom Queries - 01-8926166 (Office Hours)
 Aurora_Network_Queries@gasnetworks.ie
 Aurora Telecom Emergency Only 1850 427399 / 01 2030120

—	Transmission Pipe (High Pressure)
—	Transmission Pipe (Construction Issue)
—	Distribution Pipe (Medium Pressure)
—	Distribution Pipe (Low Pressure)
—	Service Pipe (Medium Pressure)
—	Service Pipe (Low Pressure)
—	Strategic Pipe (Medium Pressure)
—	Strategic Pipe (Low Pressure)
—	Inserted
✕	Abandoned Pipe

C=?	Cover (depth in metres)	⊗	Pressure Monitor
⊙	CP Test Point	▭	Protection (Slabbing)
∩	End Cap	- - -	Protection (Sleeve)
□	Hot Tap	△	Reducer
⊠	Installation	└	Service Terminator
⊗	Valve	○	Tee
●	Mains Verification**	□	Transition

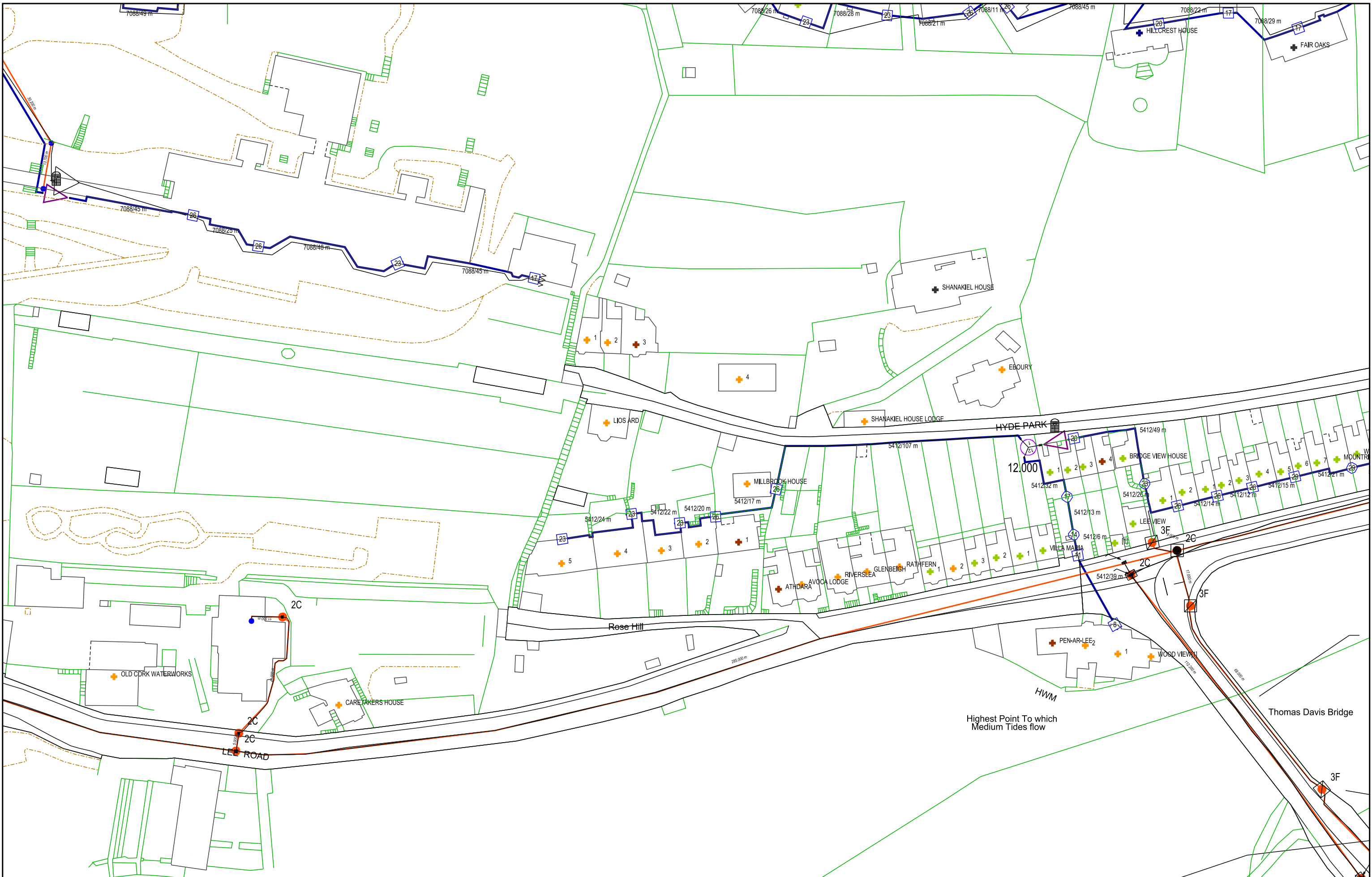
** Please contact GNI on 1850-427747 for specific information

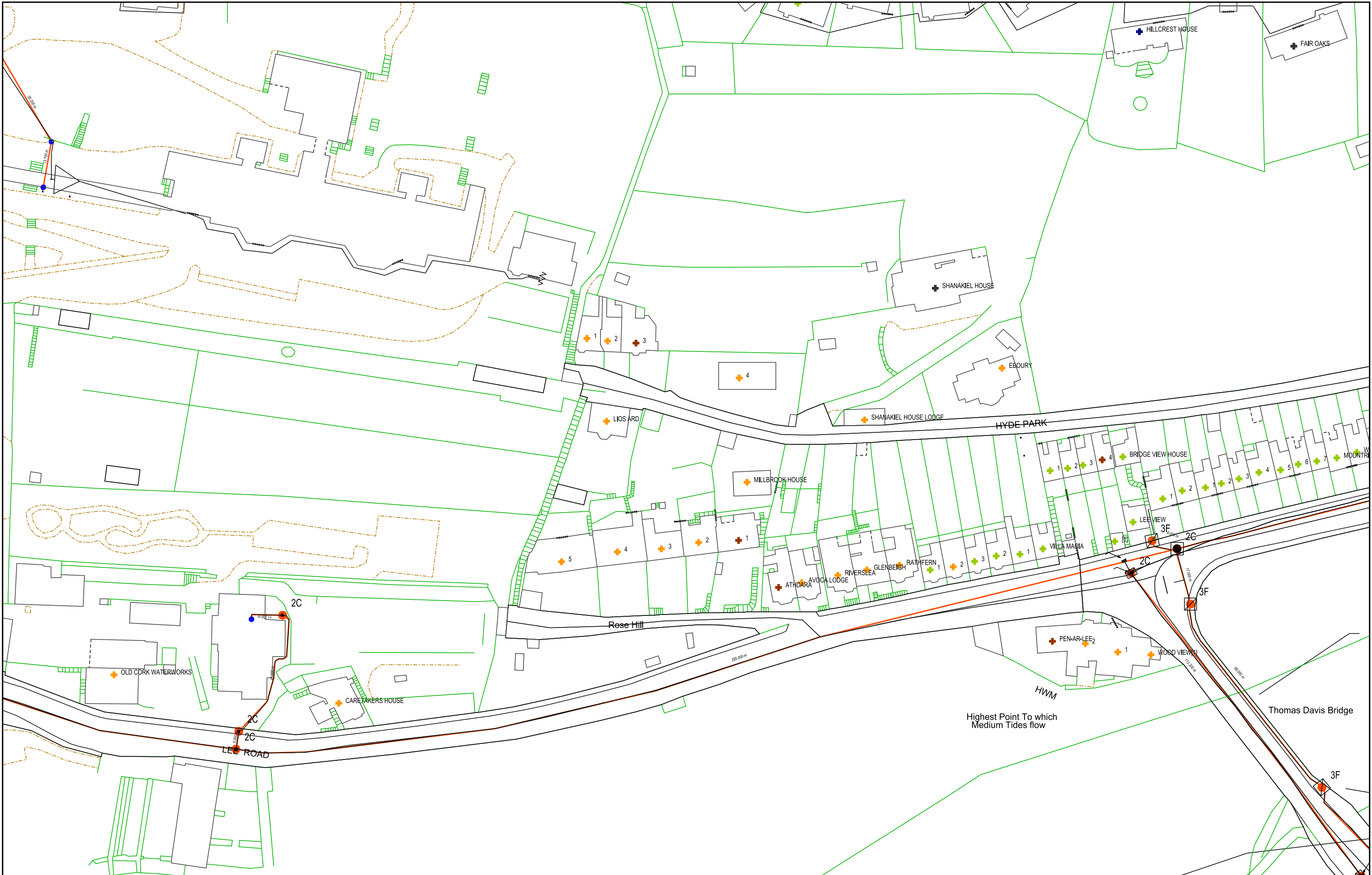
DIAL BEFORE YOU DIG
1850 4277 47
In Emergency call 1850 20 50 50



GAS NETWORK INFORMATION

Description:	
Location:	564983,571835
Plot Date:	13/02/2020 08:46
Scale:	1000 @ A3
Plotted By:	665
Ref ID:	665_13022020084658







TITLE: 20200228-001_A3

- COLOUR CODE:
- BLACK - 38KV & HIGHER VOLTAGE OVERHEAD LINES
 - GREEN - MV(10KV/20KV) OVERHEAD LINES
 - BLUE - LV (400V/230V) OVERHEAD LINES
 - CYAN - 38KV & HIGHER VOLTAGE UNDERGROUND CABLE ROUTES
 - RED - MV/LV (10KV/20KV/400V/230V) UNDERGROUND CABLE ROUTES

DATE: 28-Feb-2020

** SCALE: 1:2100

** SCALE WHEN PRINTED ON AN A3 PAGE
XY COORDINATES DISPLAYED IN IRISH GRID COORDINATE SYSTEM

WARNING

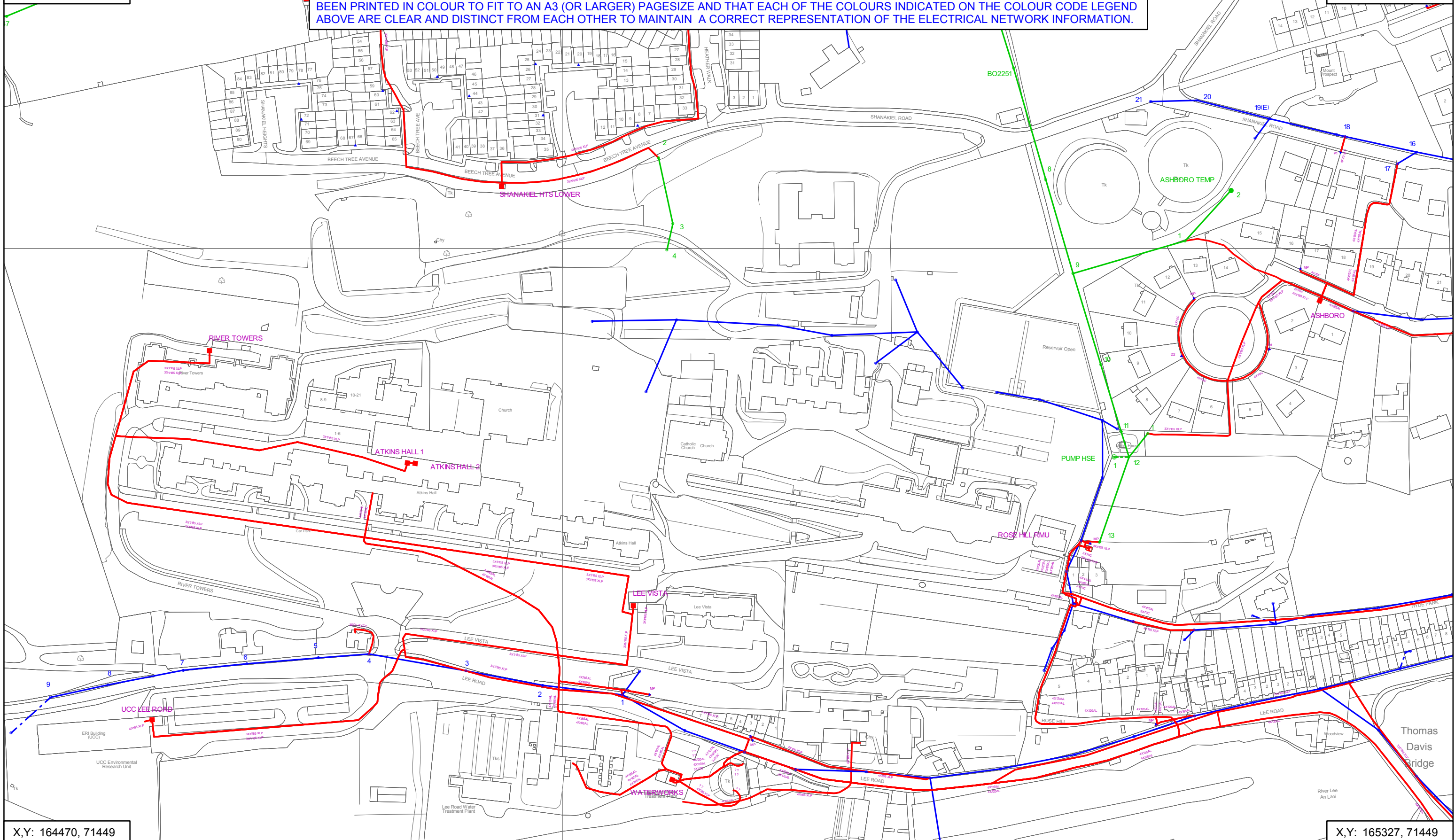
THIS MAP INDICATES THE APPROXIMATE LOCATION OF ESB TRANSMISSION (400KV, 220KV, 110KV, 38KV) AND DISTRIBUTION (20KV, 10KV, 230V/400V) UNDERGROUND CABLES AND OVERHEAD LINES IN THE GENERAL AREA OF THE PROPOSED WORKS. ESB NETWORKS TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE MAP. IT IS THE USER'S RESPONSIBILITY TO INDEPENDENTLY VERIFY THE INFORMATION AND THE LOCATION OF UNDERGROUND CABLES AND OVERHEAD LINES. LOW VOLTAGE (230V/400V) SERVICE CABLES (E.G. HOUSE SERVICES, FACTORY/SHOP SERVICES, PUBLIC LIGHTING LAMP SERVICES, ETC) ARE NOT INCLUDED BUT THEIR PRESENCE SHOULD BE ANTICIPATED. THE DEPTHS OF UNDERGROUND CABLES MUST NEVER BE ASSUMED. ADDITIONAL MORE DETAILED INFORMATION IS AVAILABLE FOR HIGH VOLTAGE TRANSMISSION UNDERGROUND CABLES (38KV, 110KV, 220KV, 400KV) FROM THE LOCAL ESB NETWORKS TRANSMISSION REPRESENTATIVE - SEE ATTACHED LIST FOR CONTACT DETAILS OR CALL 1850 372 757. NO WORK SHOULD BE CARRIED OUT IN THE VICINITY OF 38KV OR HIGHER VOLTAGE UNDERGROUND CABLES WITHOUT PRIOR CONSULTATION WITH ESB NETWORKS. BEFORE ANY MECHANICAL EXCAVATION IS UNDERTAKEN, THE ACTUAL LOCATION OF ALL UNDERGROUND ELECTRICITY CABLES MUST BE ESTABLISHED AND VERIFIED ON THE SITE USING: (A) UP-TO-DATE MAP RECORDS; (B) CABLE LOCATER EQUIPMENT OPERATED IN BOTH POWER AND RADIO MODES; (C) CAREFUL HAND DIGGING OF TRIAL HOLES USING 'SAFE DIGGING PRACTICE'. REFER ALSO TO 'HSA CODE OF PRACTICE FOR AVOIDING DANGER FROM UNDERGROUND SERVICES'. ESB TAKES NO RESPONSIBILITY FOR AND SHALL BEAR NO LIABILITY, HOWSOEVER ARISING, IN RELATION TO ANY DAMAGE, INJURY/DEATH OR LOSS OF SUPPLY AS A RESULT OF DAMAGE OR INTERFERENCE WITH ITS NETWORKS.

Maps reproduced by permission: Ordnance Survey Ireland Licence No. EN0023715-19, Copyright Ordnance Survey Ireland Government of Ireland

X,Y: 164470, 71957

ESB NETWORKS HAS ISSUED THIS MAP AS A PDF DOCUMENT. IF VIEWING A PAPER VERSION OF THIS MAP, THE VIEWER MUST ENSURE THAT IT HAS BEEN PRINTED IN COLOUR TO FIT TO AN A3 (OR LARGER) PAGESIZE AND THAT EACH OF THE COLOURS INDICATED ON THE COLOUR CODE LEGEND ABOVE ARE CLEAR AND DISTINCT FROM EACH OTHER TO MAINTAIN A CORRECT REPRESENTATION OF THE ELECTRICAL NETWORK INFORMATION.

X,Y: 165327, 71957



X,Y: 164470, 71449

X,Y: 165327, 71449



Engineering Design Consultants

www.edcengineers.com