



Telecommunications Impact Assessment

DEVELOPMENT An Bord Pleanála – Submission Former Blakes and Esmonde Motors Site

04 April 2022

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DEFINITIONS

Author:	Independent Site Management Limited (hereinafter referred to as "ISM")
Planning Body:	means An Bord Pleanála (hereinafter referred to as the "Planning Body")
Radio Frequency:	means a frequency or band of frequencies in the range 104 to 1011 or 1012 Hz, of the electromagnetic spectrum suitable for use in telecommunications.
Microwave Links:	means the transmission of information by electromagnetic waves with wavelengths in the microwave range (1 m - 1 mm) of the electromagnetic spectrum suitable for use in telecommunications.
Telecommunication Channels:	means Radio Frequency links & Microwave Transmission links (hereinafter referred to as "Telecommunication Channels")
Report Date:	means the date which the assessment was carried out (hereinafter referred to as "Report Date")
The Applicant:	means Cairn Homes Properties Limited (hereinafter referred to as the "Applicant")
The Development:	means the proposed development situated at Lower Kilmacud Road to the north, The Hill to the south and west and the N11 and Dun Laoghaire owned lands to the east (hereinafter referred to as the "Development")



EXECUTIVE SUMMARY

Independent Site Management ('ISM') has been engaged to provide a telecommunication impact assessment, to assess whether or not the proposal being made by Cairn Homes Properties Limited (the "Applicant") within its submission to An Bord Pleanála (the 'Planning Body') impacts any Telecommunication Channels ("Telecommunication Channels")

To provide this assessment, ISM reviewed the Applicant's proposed development (the "Development") in the context of the immediate surrounding registered and documented telecommunication sites.

Pursuant to our review, ISM can conclude based on the findings outlined herein that the proposal being made by the Applicant within its submission to the Planning Body does not impact any existing Telecommunication Channels at the time of the assessment.



ABOUT THE AUTHOR

ISM is a consultancy firm and asset management company that provides telecommunication consultancy and services to developers and property owners.

ISM works closely with all providers of wireless and fixed line telecommunication services to bridge their infrastructure requirements with that of private and public development. ISM has successfully been providing this service in Ireland for 20 years.

ISM is a multidiscipline firm proficient in the 3 main areas in the delivery of telecommunication services:

- (1) Radio Frequency technology;
- (2) Microwave Transmission technology; &
- (3) Fixed Line fiber optic & copper technologies.

ISM has had an integral part in procuring, designing, building and subsequently managing over 300 mobile base station and/or fixed wireless sites, the vast majority of which originated in densely populated, urban environments.

ISM has designed built and operates 6 in-building distributed antenna systems, and 2 large area managed fibre optic networks.



DEVELOPMENT DESCRIPTION

The development will consist of the construction of a mixed use scheme of 377 no. "Built to Rent" BTR apartments, Community Sports Hall (c. 933 sq. m), along with 5 no. restaurant/cafés (c. 841 sq.m), creche (c. 215 sq. m), office (c. 195 sq m) and ancillary residents' support facilities/services (c. 1,016 sq. m) laid out in 6 no. blocks ranging in height from 3-9 storeys (over basement) comprising 21 no. studio apartments, 189 no. 1 bedroom apartments, 159 no. 2 bedroom apartments & 8 no. 3 bedroom apartments (selected no. with balconies), and public realm upgrades as follows:

- Building 01 (Part 3 – 4, 6 & 7 storeys over basement) consists of 77 no. apartments comprising 13 no. studio apartments, 30 no. 1 bedroom apartments, 33 no. 2 bedroom apartments, 1 no. 3 bedroom apartment (with a creche of c. 215 sq. m with associated play area at ground floor);
- Building 02 (Part 3 – 5, 7 & 8 storeys over basement) consists of 95 no. apartments comprising 7 no. studio apartments, 57 no. 1 bedroom apartments, 24 no. 2 bedroom apartments, 7 no. 3 bedroom apartments;
- Building 03 (Part 7 and 9 storeys over part basement) consists of 54 no. apartments comprising 18 no. 1 bedroom apartments and 36 no. 2 bedroom apartments (and office of c. 195 sq. m);
- Building 04 (7 storeys over basement) consists of 60 no. apartments consists of 42 no. 1 bedroom apartments & 18 no. 2 bedroom apartments;
- Building 05 (6 storeys, over basement to Lower Kilmacud Road & 7 storeys to the south and west) consists of 62 no. units comprising 1 no. studio apartment, 26 no. 1 bedroom apartments, & 35 no. 2 bedroom apartments (restaurant/café unit c. 219 sq. m at lower ground floor/plaza level & 2 no. restaurant/café units c. 234.1 sq. m and c. 133.9 sq. m respectively at ground floor level onto Lower Kilmacud Road) along with a double height Community Sports Hall including ancillary areas (c. 933 sq. m);
- Building 06 (5 & 6 storeys) consists of 29 no. units comprising 16 no. 1 bedroom apartments and 13 no. 2 bedroom apartments (restaurant/café unit c. 185.9 sq. m at lower ground floor/plaza level & 68.1 sq. m restaurant/café unit at ground floor level onto Lower Kilmacud Road).

The BTR development will also include ancillary Residents' Support Facilities/Services (c. 1,016 sq. m at ground floor of Building 03 and 04) as well as open space areas and improvements to the public realm along the Lower



Kilmacud Road (to footpath and cyclepath) and The Hill, new road layout (omission of left turning lane, widening of footpath) to The Hill, hard and soft landscaping, set down area on the Lower Kilmacud Road.

Provision of 2 no. vehicular access points from 'The Hill' into 2 no. separate basements to include basement car parking spaces (119 no.); 1 no. set down surface car parking space as well as 866 no. cycle spaces (basement and surface levels) and ancillary areas; pumping stations at basement level, along with solar panels, and green roofs at roof level.

All associated site development works, open spaces, landscaping, boundary treatment, plant areas, waste management areas, and services provision (including ESB substation).



SITE LOCATION/LAYOUT MAP



TELECOMMUNICATION CHANNELS

This report assessed the two wireless Telecommunication Channels or networks of Telecommunication Channels that may be affected by the height and scale of a new development, Radio Frequency links & Microwave Transmission links

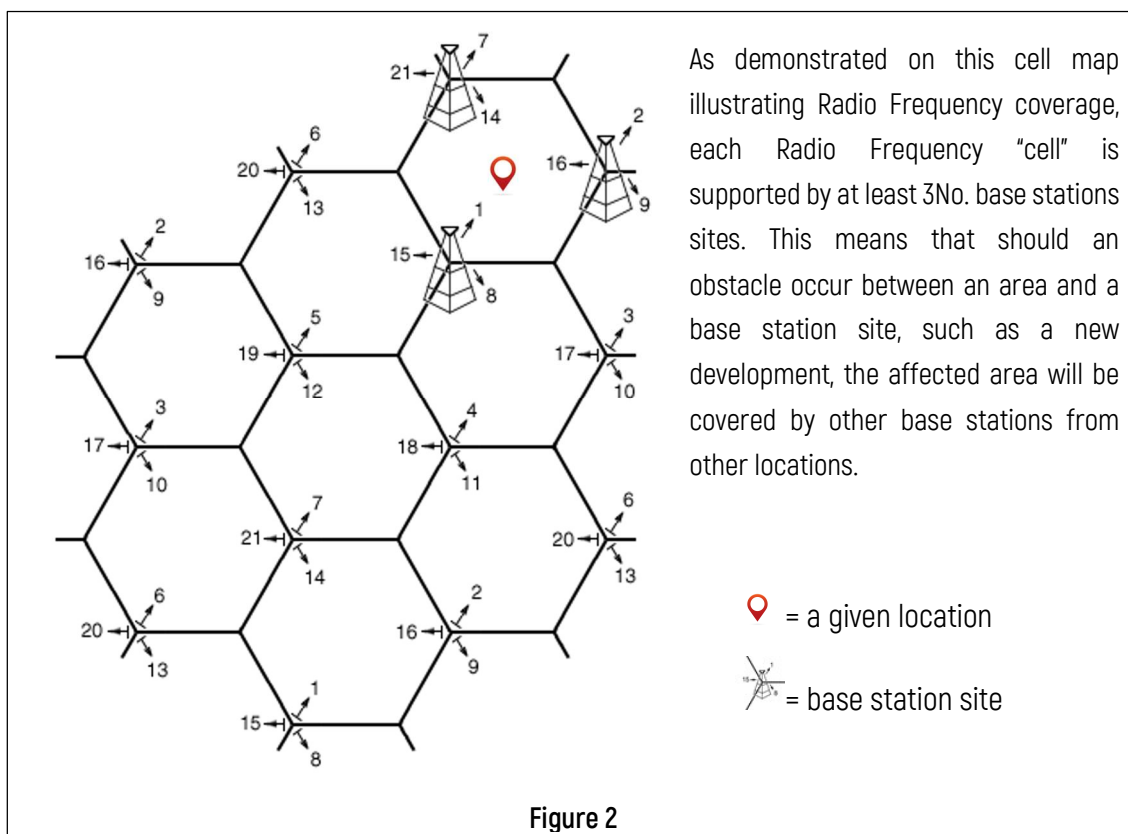
Radio Frequency links & Microwave Transmission Links are used in Ireland's mobile phone and fixed wireless networks and disseminate at an average above ground level height of 20m, making them the most relevant Telecommunication Channels to be assessed in relation to the height and scale of a new development and to that end what allowance the Applicant needs to make for their retention.

Mobile phones send and receive signals via links from nearby antenna sites or cellular towers, technically known as base stations, using Radio Frequency waves. Microwave Transmission links use microwave dishes to "transmit" from these base stations to other base stations forming a network. Radio Frequency waves operate at a lower power within lower frequencies of the radio spectrum, whereas Microwave Transmission operates at higher power within higher frequencies of the radio spectrum.

Radio Frequency waves are distributed over land areas in "cells", each served by at least one fixed-location transceiver (base station), but more normally by three cell sites or base stations. These base stations provide the cell with the network coverage, which can then be used for voice, data, and other types of content. A cell typically uses a different set of frequencies from neighbouring cells to avoid interference and provide guaranteed service quality within each cell.

When joined together, these cells provide Radio Frequency coverage over a wide geographic area (Cellular network). This enables numerous portable transceivers (e.g., mobile phones, tablets and laptops equipped with mobile broadband modems, pagers, etc.) to communicate with each other and with fixed transceivers and telephones anywhere in the network, via base stations, even if some of the transceivers are moving through more than one cell during transmission.

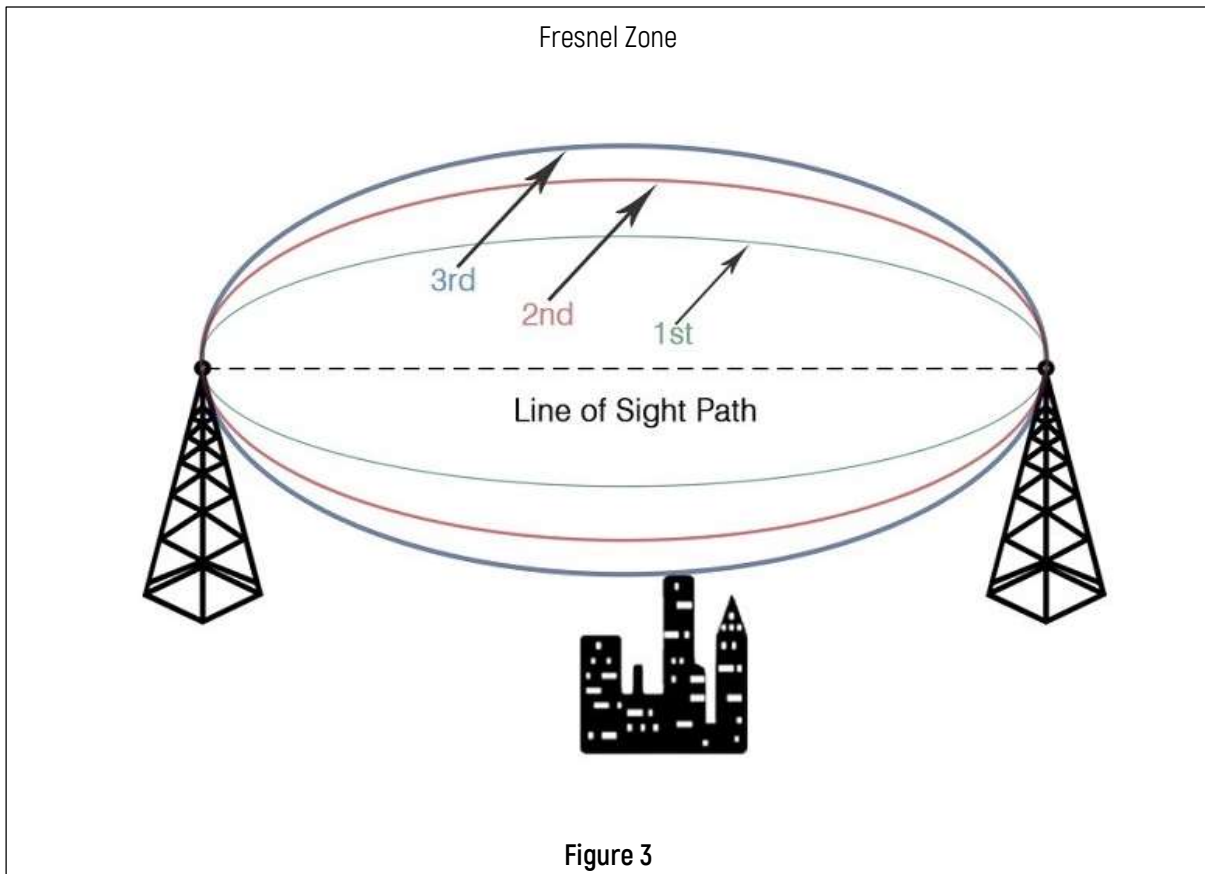




Cellular networks offer a number of desirable features, but most notably, additional cell towers can be added indefinitely and are not limited by the horizon, therefore it can be considered **indeterminable** as to whether a new development affects the Radio Frequency coverage of a geographical area which is being served by multiple base stations, not necessarily the closest.

Conversely, Microwave Transmission links are point-to-point links, which are easily determined to be affected, or not, by the height and scale of a new development. In point-to-point wireless communications, it is important for the line of sight between two base stations to be free from any obstruction (terrain, vegetation, buildings, wind farms and a host of other obstructions). As any interference or obstruction in the line of sight can result in a loss of signal.

While installing Microwave links, it is important to keep an elliptical region between the transmitting Microwave link and the receiving Microwave link free from any obstruction for the proper functioning of the system. This 3D elliptical region between the transmit antenna and the receive antenna is called the **Fresnel Zone**. The size of the ellipse is determined by the frequency of operation and the distance between the two sites.



Essentially, if there is an obstacle in the Fresnel zone, part of the radio signal will be diffracted or bent away from the straight-line path. The practical effect is that on a point-to-point Microwave link, referred to herein, the refraction will reduce the amount of energy reaching the receiving microwave dish. The thickness or radius of the Fresnel zone depends on the frequency of the signal – the higher the frequency, the smaller the Fresnel zone. Microwave links are high frequency radio links used for point-to-point transmission.

FINDINGS

ISM's assessment did not identify any Microwave Transmission links that will be impacted by the height and scale of the Development.

Our assessment has not identified any Radio Frequency links that will be impacted by the height and scale of the Development.

ISM carried out a full assessment of neighbouring registered and documented telecommunication sites to assess what Microwave links would be impacted by the height and scale of the Development. Refer to Figure 4 & 5 of the appendices for full analysis. The assessment of Microwave Transmission links entailed both a visual survey of each identified neighbouring telecommunication site within a reasonable geographic proximity to the Development and a request for information from telecommunication providers where the visual survey was inconclusive.

ISM carried out a full assessment of neighbouring registered and documented telecommunication sites to assess what Radio Frequency links might be impacted by the height and scale of the Development. To assess this, we carried out a walk test throughout the surrounding areas to ascertain what cells were serving the street areas to the north, south, east & west of the Development site. Refer to Figure 6 of the appendices for full analysis

Our assessment identified Radio Frequency coverage for the local geographic area is served by several cells at strategic distances away from the development site on a 360° basis which is typical cell pattern for urban Radio Frequency coverage. The walk test data determined that the business, residential and public road areas to the north, south, east & west of the Development are adequately covered by the cell sites identified in figure 6 and are not reliant on Radio Frequency coverage from any one cell that would be obstructed by the Development.

Please note that telecommunication networks are always evolving, and as such, these findings remain subject to change.



APPENDICIES

Figure 4: Identification of neighbouring registered and document telecommunication sites (Area Telecommunication Analysis)

Figure 5: Identification of Microwave links disseminating from neighbouring registered and document telecommunication sites (Microwave Link Analysis)

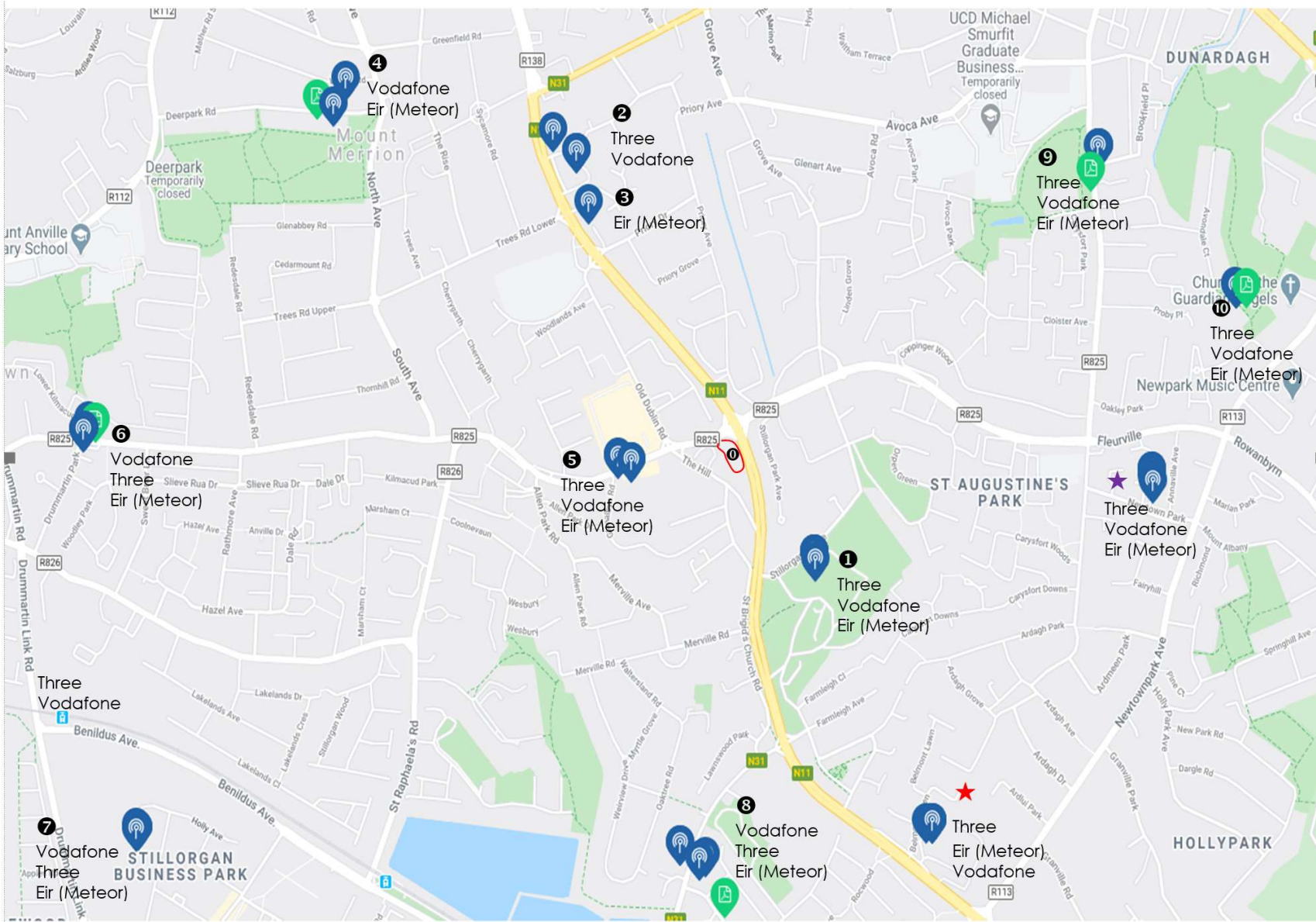
Figure 6: Identification of local area Cells by Cell ID (Cell Identification Analysis)



Figure 4

Area Telecommunication Analysis

Source: Comreg



Note
 All Dimensions to be checked on site
 No Dimensions to be scaled from this Drawing
 This drawing to be read with relevant
 Consultant Drawings

- ① Proposed Development
- ① St John of Gods
- ② Stillorgan Park Hotel
- ③ Priory Park Mast
- ④ Deerpark Road
- ⑤ Maple House
- ⑥ Drummartin
- ⑦ Stillorgan Business Park
- ⑧ The Leopardstown Inn
- ⑨ Carysfort House
- ⑩ Castlebyrne Park
- ★ Belmont Nursing (ISM)
- ★ Wishing Well (ISM)

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Client
 Cairn Homes Properties Limited
 Project
 Blakes & Esmonde Motors Site

Option	1
Report Date	29/05/2020
File Name	Blakes & Esmonde Motors Site

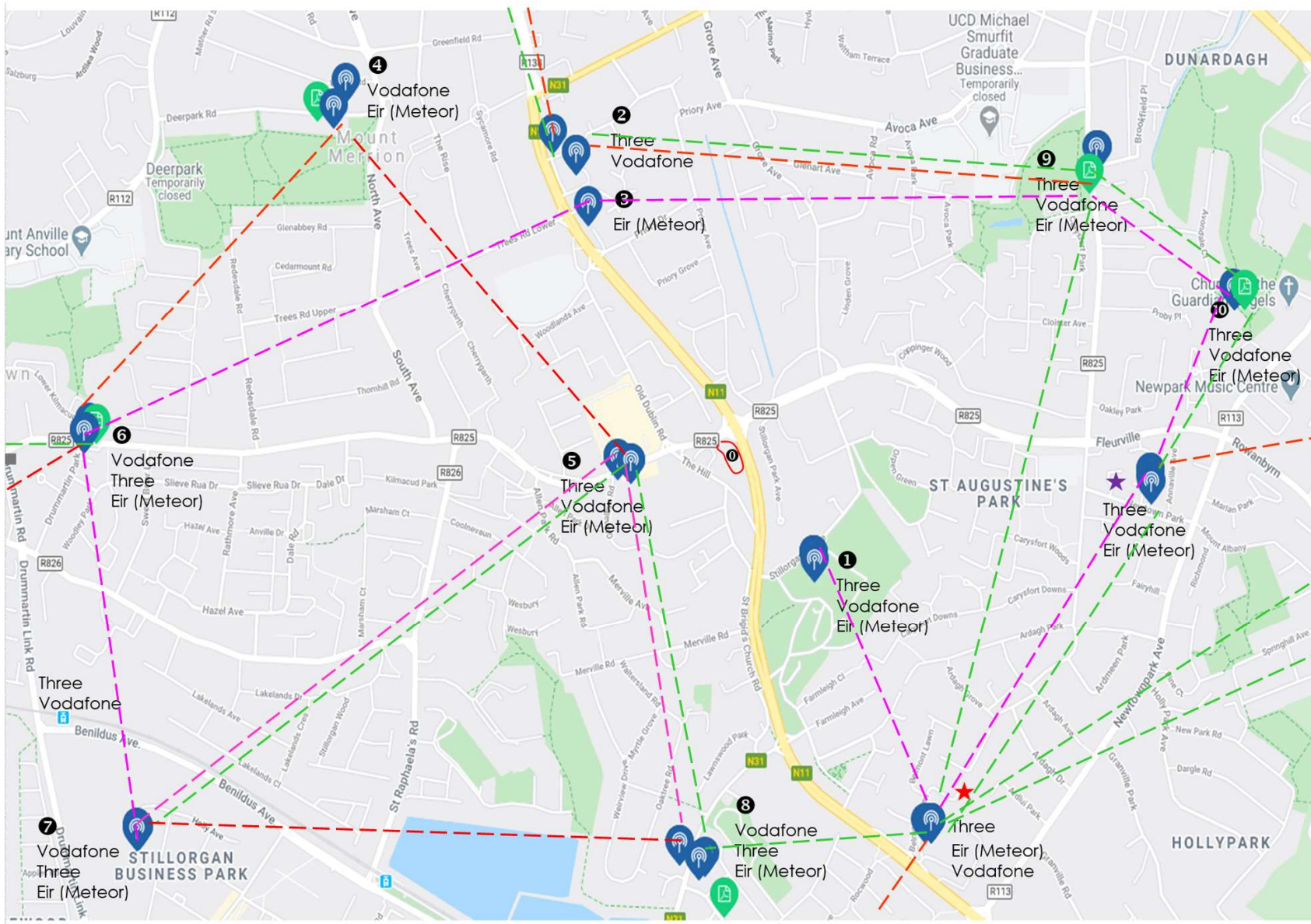
Drawing:
 Area Site Analysis

Building	Drawing No.	Zone	Rev
SPN	10621		1

Figure 5

Microwave Link Analysis

Source: Comreg ISM Vodafone Three & Eir Mobile



Note
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- Three Transmission Link
- Vodafone Transmission Link
- Eir Transmission Link

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Drawing:
 Link Analysis

Building	Drawing No.	Zone	Rev
SPN	10621		1

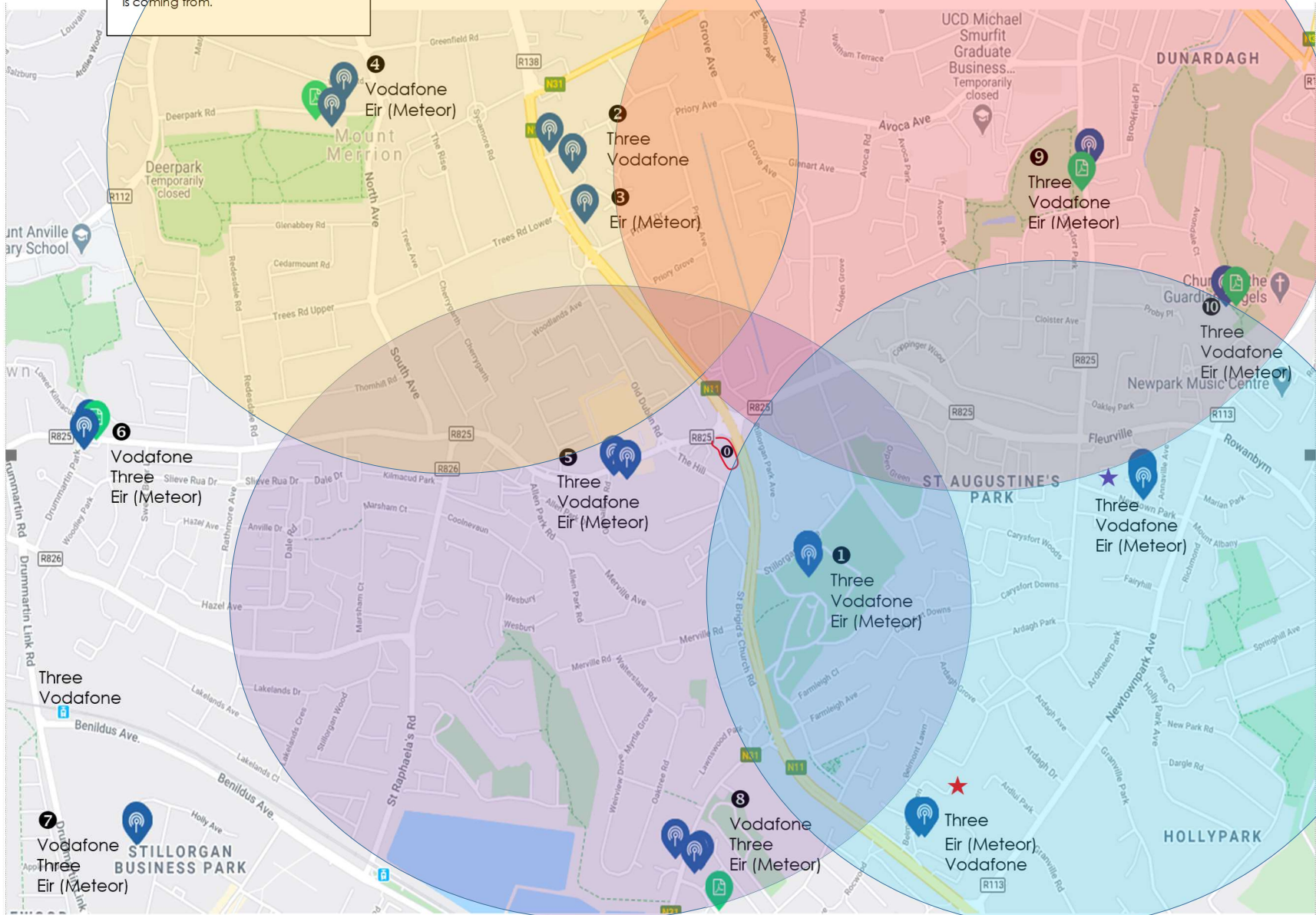
Figure 6

Walk Test Data

Source: Comreg, ISM

NOTE

The Anite Walker Air test kit was used to test and record the radio environment. This kit controls and logs the radio environment and the Cell ID the signal is coming from.



Note
 All Dimensions to be checked on site
 No Dimensions to be scaled from this Drawing
 This drawing to be read with relevant
 Consultant Drawings

- Multiple Cell IDs
 - ① St John of Gods
 - ★ Belmont Nursing (ISM)
 - ☆ Wishing Well (ISM)
- Multiple Cell IDs
 - ② Stillorgan Park Hotel
 - ③ Priory Park Mast
 - ④ Deerpark Road
- Multiple Cell IDs
 - ⑤ Maple House
 - ⑧ The Leopardstown Inn
- Multiple Cell Cell ID
 - ⑨ Carysfort House
 - ⑩ Castlebyrne Park

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Drawing:
 Cell Identification Analysis

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