



Telecommunications Impact Assessment

DEVELOPMENT
OMNI PLAZA SHD
OMNI PARK, SWORDS ROAD
SANTRY, DUBLIN 9
An Bord Pleanála – Submission

19 August 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 10 ⁴ to 10 ¹¹ or 10 ¹² 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 Serendale Limited (hereinafter referred to as the "Applicant")
The Development:	means the proposed development situated at Omni Park,, Swords Road, Santry, Dublin 9 (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 Serendale 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 proposed development 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

Permission for a 7 year duration is sought by Serendale Limited for a Strategic Housing Development which comprises the demolition of the existing industrial / warehouse buildings northwest of Omni Park Shopping Centre, Santry, Dublin 9 and the construction of 457 no. apartments across 4 no. blocks, ranging in height from 4-12 storeys (over basement). The proposal includes 2 no. retail/café/restaurant units, 1 no. community building, 1 no. childcare facility, 1no. residential amenity space and 5 no. ESB substations.

The development also provides for a basement carpark of 213 no. spaces and 7 no. motorcycle spaces with 7 no. creche drop-off parking spaces and 6 no. carshare parking spaces located in newly reconfigured surface carpark. The proposal provides for 768 no. bicycle parking spaces.

The proposal includes the provision of a new public open space plaza, with consequential revisions to existing commercial car parking areas, to integrate the proposals with the wider District Centre.

The proposal includes the provision of pedestrian and cycle connections and improvements through Omni Park Shopping Centre, including a plaza and cycle/pedestrian link substantially in the form permitted as part of the Omni Living Strategic Housing Development (Ref. ABP-307011-20).

Access to the proposed 213 no. basement car parking spaces is via the existing Omni Park Shopping Centre. A secondary servicing and emergency access is via the existing service road to the rear of existing retail premises at Omni Park Shopping Centre and accessed from the Swords Road.

The development provides for all associated and ancillary site development, demolition and clearance works, hoarding during construction, revisions to car parking within the Omni Park Shopping Centre, soft and hard landscaping, public realm works, public lighting and signage, ancillary spaces, plant including photovoltaic panels, water infrastructure, utilities and services.

The application is accompanied by an Environmental Impact Assessment Report.

A full description of the development is contained within the public notices, architectural drawings and accompanying application documents.



SITE LOCATION/LAYOUT MAP



Figure 1

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

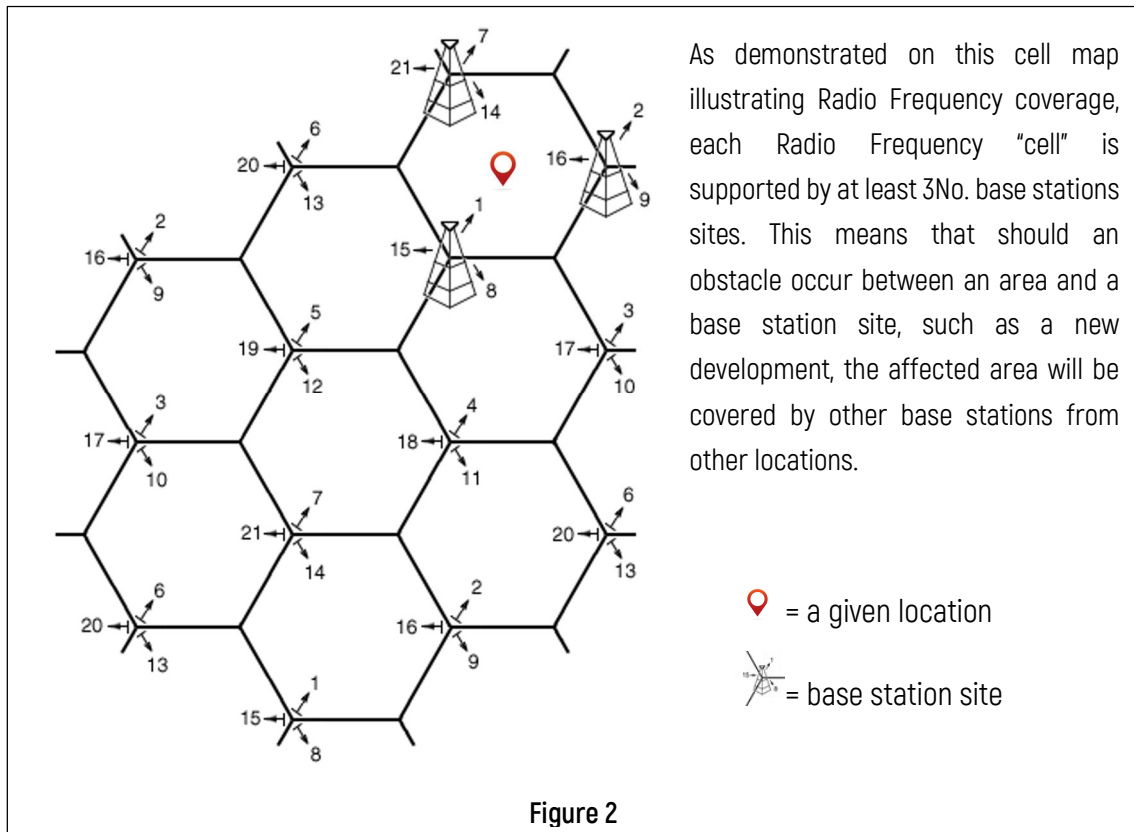
Radio Frequency links & Microwave Transmission Links are used in Ireland's mobile phone and fixed wireless networks and disseminate at an average above ground level height of 20m, making them the most relevant Telecommunication Channels to be assessed in relation to the height and scale of a new development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

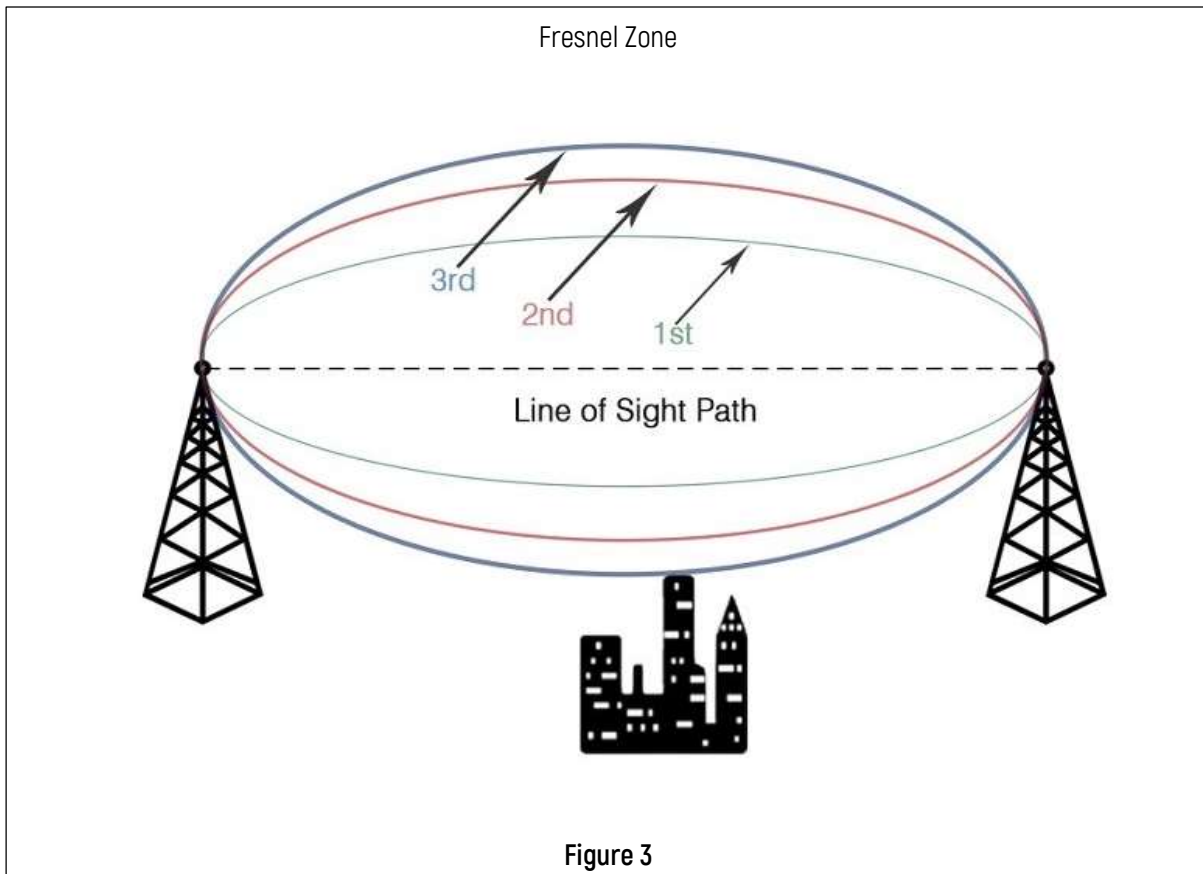




Cellular networks offer a number of desirable features, but most notably, additional cell towers can be added indefinitely and are not limited by the horizon, therefore it can be considered **indeterminable** as to whether a new development affects the Radio Frequency coverage of a geographical area 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 semi-urban/semi-rural Radio Frequency coverage. The walk test data determined that the lands, residential and public road & amenity 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.



Lastly, we hasten to point out that the Development is in reasonably close proximity to the Omni Shopping Centre & Retail Park, which is home to a higher than average concentration of telecommunications channels,. We can conclude that the Development will not impact these telecommunication channels as the subject site is not blocking the line of sight of any of the telecommunication channels emanating from the masts on Omni Shopping Centre & Retail Park.

It is therefore our findings that the Development, as of the date of this report, will not impact any telecommunication channels, and on foot of these findings, have not made any recommendations that the Applicant implement any mitigation infrastructure at this time.

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 documented telecommunication sites (Area Telecommunication Analysis)

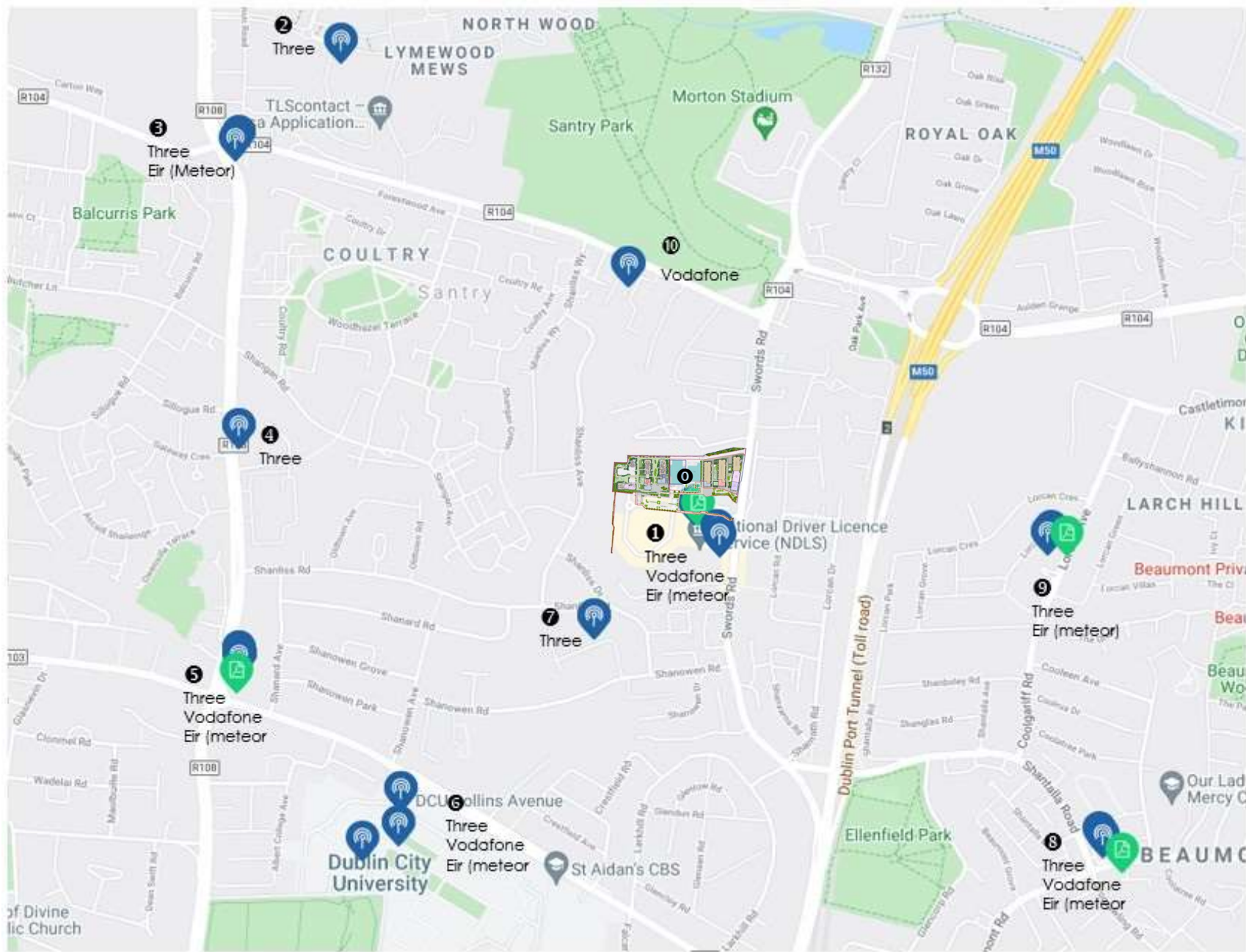
Figure 5: Identification of Microwave links disseminating from neighbouring registered and document telecommunication sites (Microwave Link Analysis)

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

- 0 Proposed Development
- 1 Omni Shopping Centre
- 2 Regus Santry
- 3 Metro Hotel
- 4 Ballymun Garda Station
- 5 Ballymun ESB
- 6 DCU
- 7 Santry Garda Station
- 8 Beaumont House (ISM Site)
- 9 McDonnell's Supervalu
- 10 Eir Exchange Santry

* ISM Site

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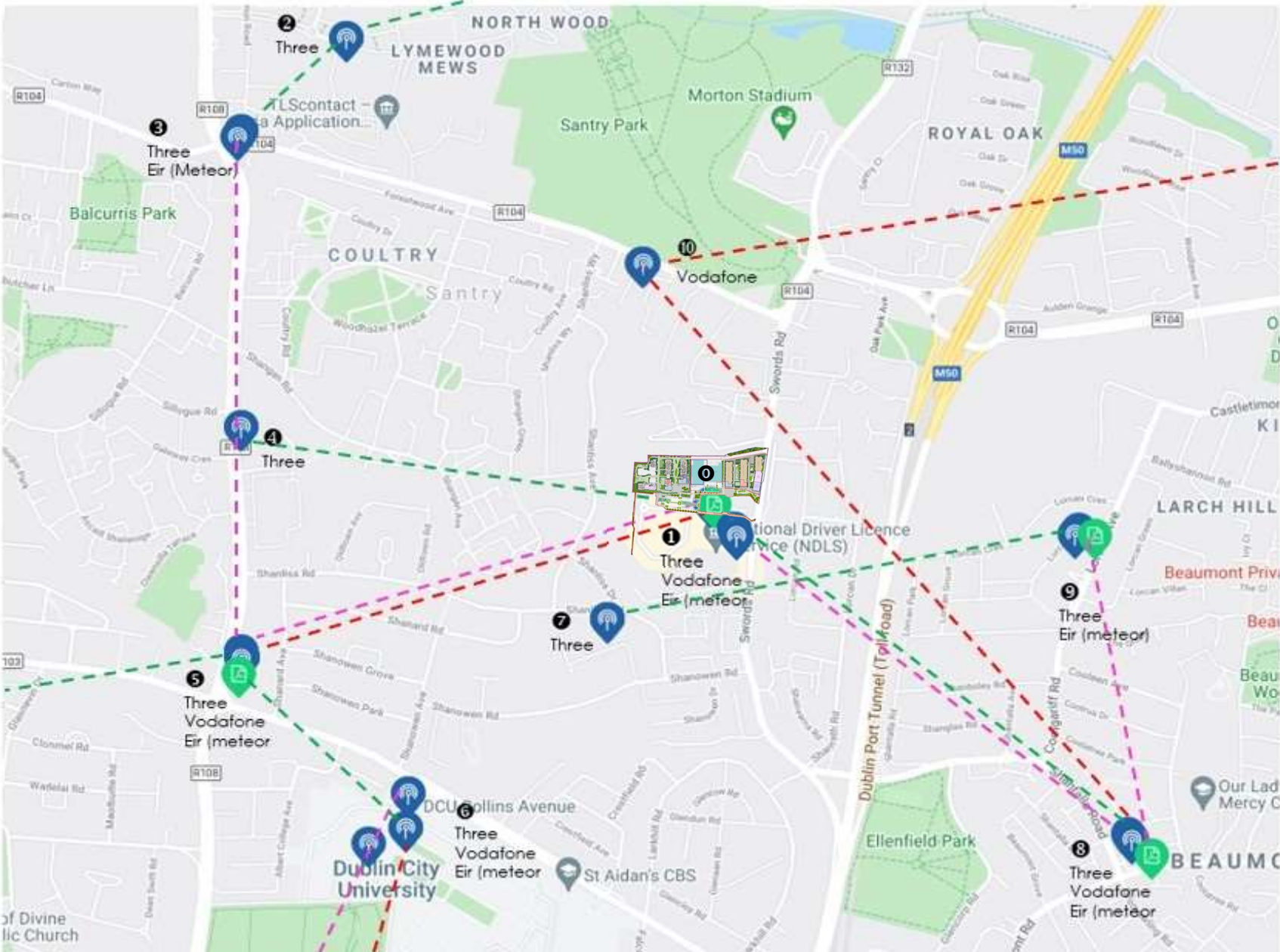
Project
Omni Plaza SHD

Option	1
Report Date	02/08/2022
File Name	Omni Plaza SHD

Drawing:
Area Site Analysis

Building	Drawing No.	Zone	Rev
SPN	H 0222		1

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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

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

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Omni Plaza SHD

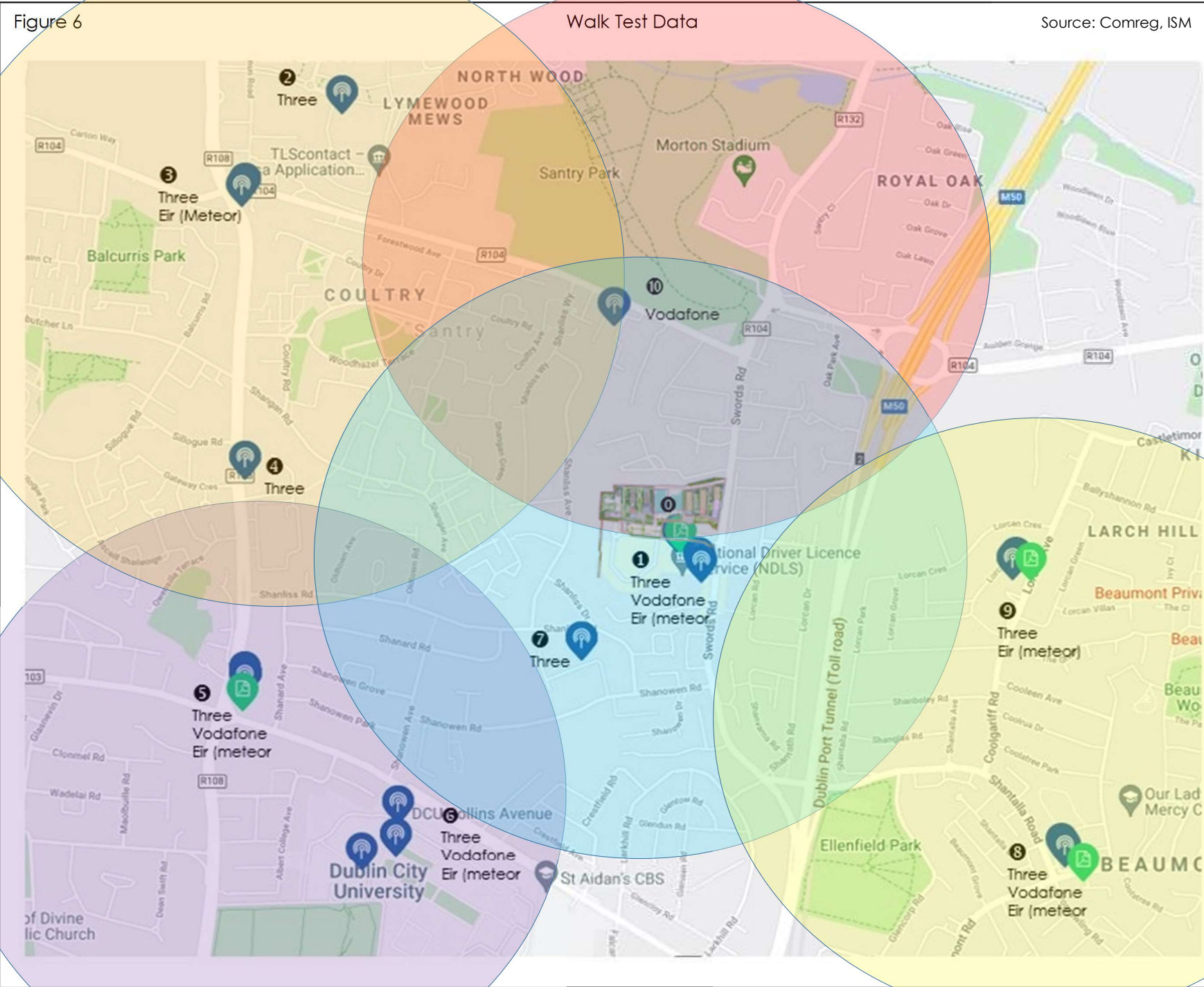
Option	1
Report Date	02/08/2022
File Name	Omni Plaza SHD

Drawing: Link Analysis			
Building	Drawing No.	Zone	Rev
SPN	H 0222		1

Figure 6

Walk Test Data

Source: Comreg, ISM



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 Omni Shopping Centre
 - 7 Santry Garda Station
- Multiple Cell IDs
 - 2 Regus Santry
 - 3 Metro Hotel
 - 4 Ballymun Garda Stat,
- Multiple Cell IDs
 - 5 Ballymun ESB
 - 6 DCU
- One Cell ID
 - 10 Eir Exchange Santry
- Multiple Cell IDs
 - 8 Beaumont House*
 - 9 McDonnell's Supervalu

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Drawing:
Cell Identification Analysis

Building	Drawing No.	Zone	Rev
SPN	H 0222		1