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iSM INDEPENDENT SITE MANAGEMENT

Telecommunications Impact Assessment Report

DEVELOPMENT
MOUNTGORRY LRD

23 September 2024

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DEFINITIONS

Author:	Independent Site Management Limited (hereinafter referred to as "ISM")
Mitigation Measures:	means the allowances made for the retention of important Telecommunication Channels (hereinafter referred to as "Mitigation Measures")
Planning Authority:	means Fingal County Council (hereinafter referred to as the "Planning Authority")
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 Bartra Propco 23 Limited (hereinafter referred to as the "Applicant")
The Development:	means the proposed development situated at a site fronting the Swords to Malahide Road (R106), Mountgorry, Swords, Co. Dublin (hereinafter referred to as the "Development")

EXECUTIVE SUMMARY

Independent Site Management ('ISM') has been engaged to provide a telecommunication impact assessment, to assess whether the proposal being made by Bartra Propco 23 Limited (the "Applicant") within its submission to Fingal County Council (the 'Planning Authority') 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 Authority does not impact on 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 now operates 6 in-building distributed antenna systems, and 2 large area managed fibre optic networks.

DEVELOPMENT DESCRIPTION

Bartra Propco 23 Limited intend to apply for permission for development for a Large-scale Residential Development (LRD) at this c. 0.8731 Ha site fronting the Swords to Malahide Road (R106), Mountgorry, Swords, Co. Dublin. The site is bounded to the west by open space, with Seamount View Housing Estate further beyond, to the south by the R106, to the east by an access road to the Applegreen Service Station and to the north by Swords Business Park.

The development's surface water drainage network shall discharge from the site into the existing manhole located along the access road to the east of the site. The development site area and drainage work areas will provide a total application site area of c. 0.8792 Ha.

The proposed development will principally consist of: the construction of 123 No. residential units (55 No. one bed apartments and 68 No. two bed apartments). The development will be provided in a courtyard block arrangement ranging in height from part 4 No. to part 5 No. storeys. The proposed development has a gross floor area of c. 10,291 sq m.

The proposed development will also provide: vehicular access from the access road to the east; 24 No. car parking spaces; bicycle parking spaces; motorcycle parking spaces; pedestrian/cycle entrances at the south-west and north of the site, and along the western boundary connecting into the adjoining open space; a footpath and bicycle path around the south, east and north of the site perimeter and a shared cycle/pedestrian path along the western boundary; balconies and terraces facing all directions; hard and soft landscaping; boundary treatments; green roofs; lift overrun; PV panels; lighting; ESB substation; switchroom; plant; and all associated works above and below ground.

SITE LOCATION/LAYOUT MAP

TELECOMMUNICATION CHANNELS

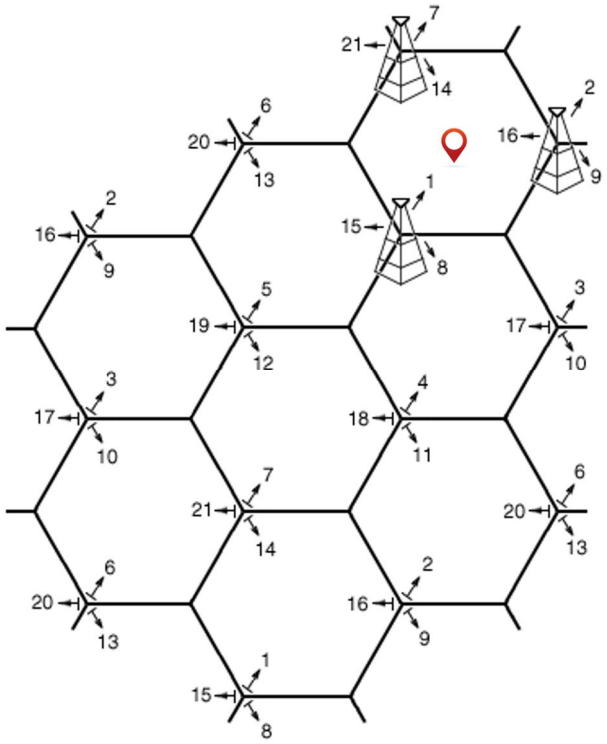
This report assesses the two wireless Telecommunication Channels or networks of Telecommunication Channels that may be affected by the height and scale of a new development, Radio Frequency links & Microwave Transmission links.

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 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.



As demonstrated on this cell map illustrating Radio Frequency coverage, each Radio Frequency "cell" is supported by at least 3No. base stations sites. This means that should an obstacle occur between an area and a base station site, such as a new development, the affected area will be covered by other base stations from other locations.

= a given location

= base station site

Figure 2

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.

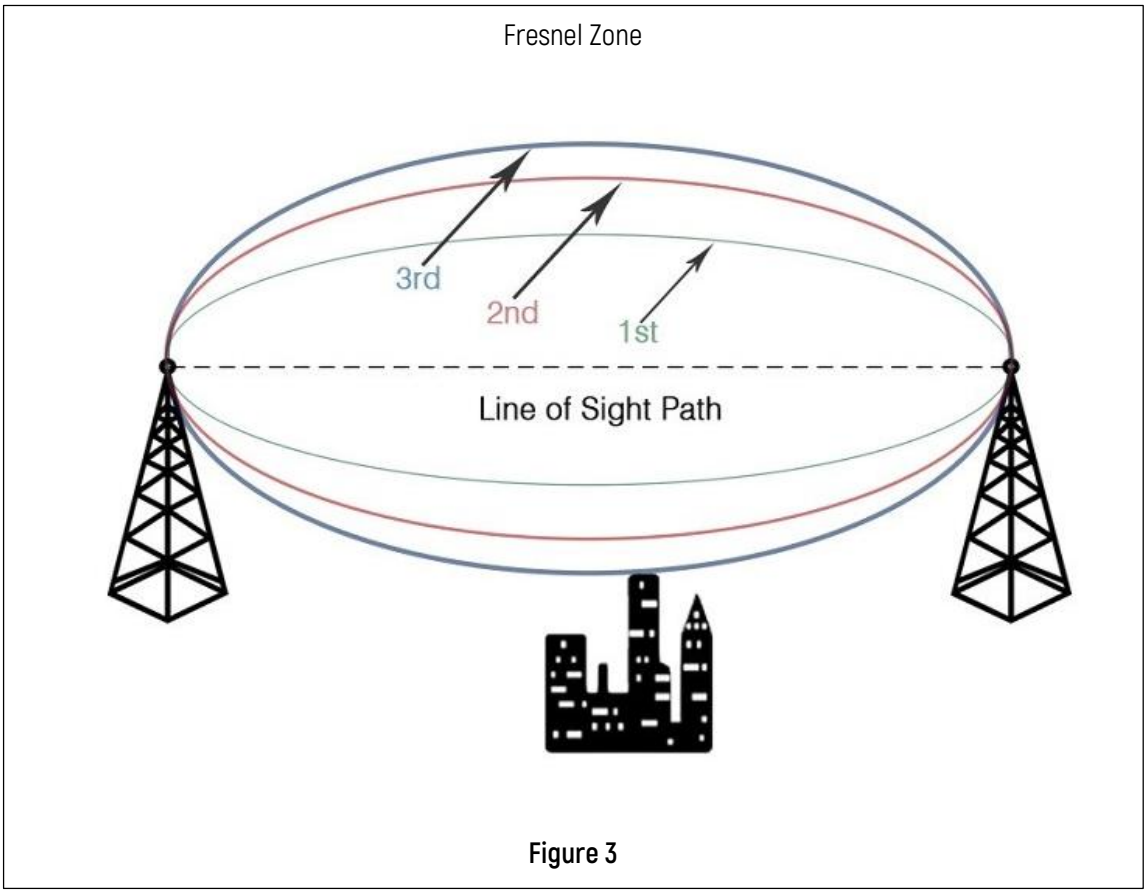


Figure 3

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 5 & 6 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 drive 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 7 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 drive test data determined that the lands, commercial, residential and public road (including the M1) & amenity areas to the north, south, east & west of the Development are adequately covered by the cell sites identified in Figure 7 and are not reliant on Radio Frequency coverage from any one cell that would be obstructed by the Development.

Lastly, we note that the Development is in close or immediate proximity to the 3 roof top telecommunication sites which have moderate to low levels of telecommunications channels which are predominantly Radio Frequency links. It is our finding that the Development will not impact these telecommunication channels as the direction and/or propagation of the

telecommunication channels are oriented to azimuths that are not pointed directly at the Development and are therefore not impacted. Refer to Figures 4.1, 4.2, 4.3 & 4.4 below.

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 Authority does not impact any existing Telecommunication Channels at the time of the assessment and therefore have not made any recommendations that the Applicant implement any mitigating infrastructure at this time.

Site Locations

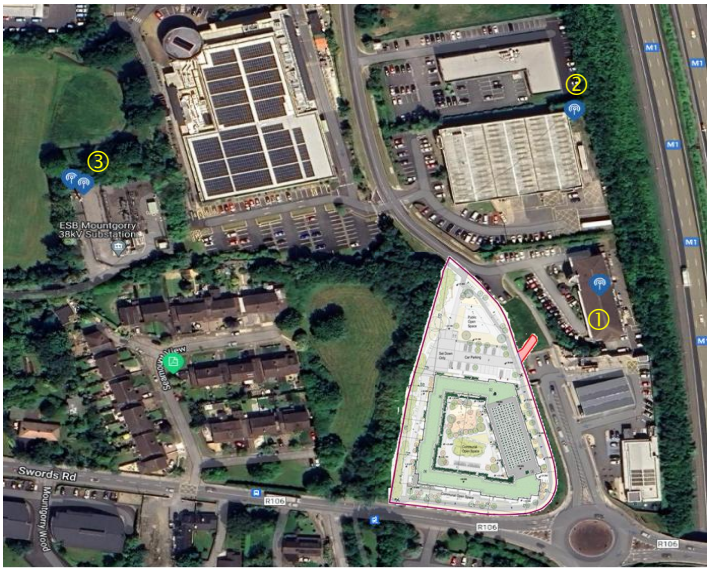


Figure 4.1

A & T Transport

Figure 4.2

Seamount ESB Mast

Figure 4.3

CH Robinson

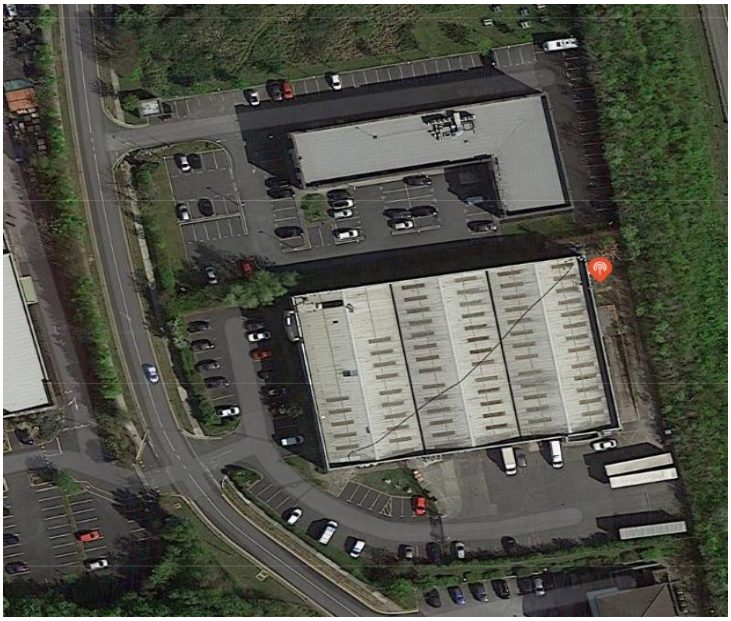


Figure 4.4

DISCLAIMER

Due to the confidential nature of planning applications/submissions, ISM does not, as standard practice, contact or involve Ireland's licenced Mobile Network Operators, namely: Vodafone Ireland; Three Ireland; or Eircom Limited t/a Eir Mobile, when preparing this report. If contact is made with a Mobile Network Operator, we duly note the source information within our reports.

ISM has wholly relied upon the publicly available information provided by Commission for Communications Regulation, "ComReg", its own extensive record of wireless infrastructure, and the results of a comprehensive visual survey carried out on the Report Date notated herein. Therefore, the specific Mobile Network Operator transmitting the identified telecommunication channel is recorded on a best endeavour basis.

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

APPENDICES

Figure 5: Identification of neighbouring registered and documented telecommunication sites (Area Telecommunication Analysis)

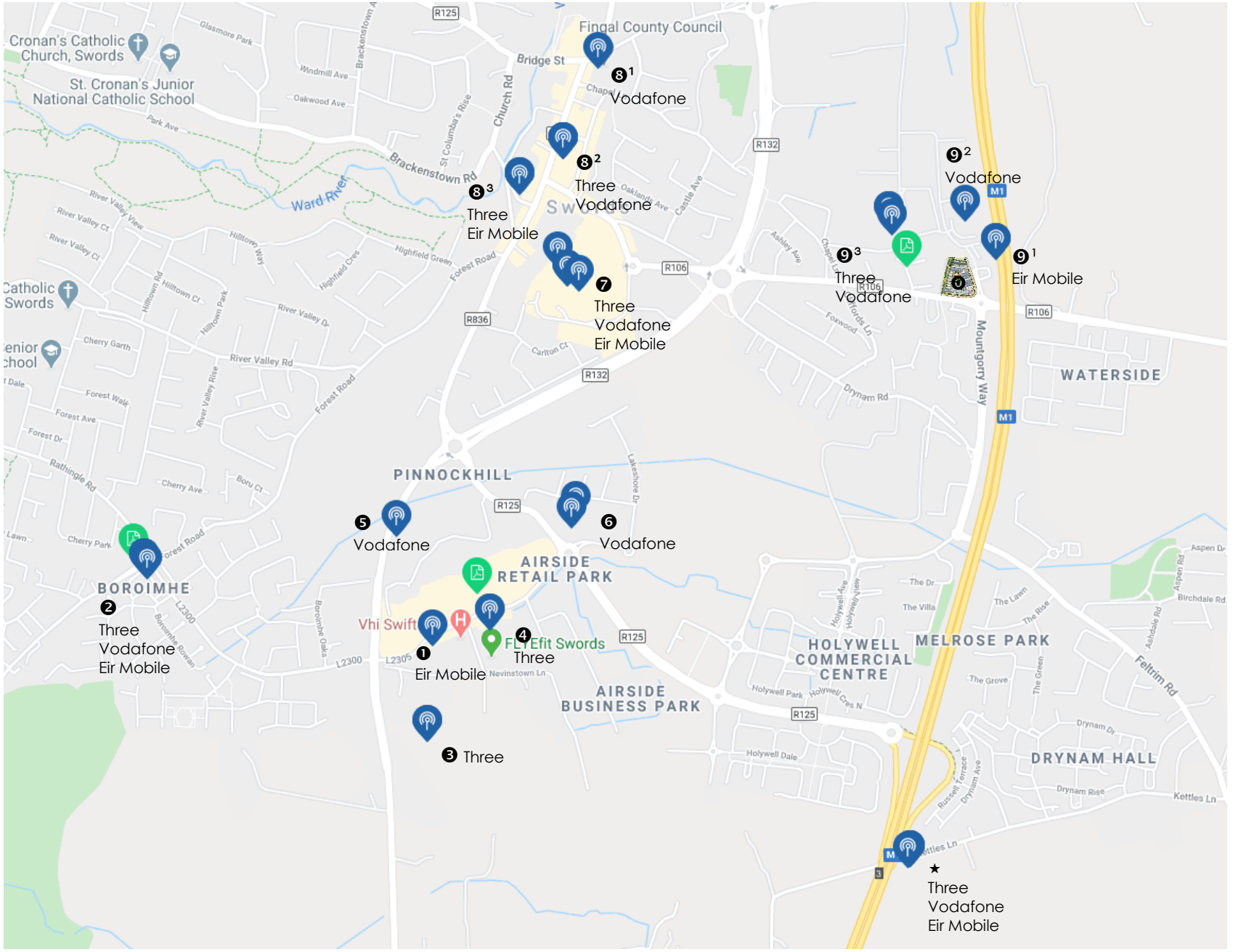
Figure 6: Identification of Microwave links disseminating from neighbouring registered and documented telecommunication sites (Microwave Transmission Link Analysis)

Figure 7: Identification of local area Cells by Cell ID (Cell Identification Analysis)

Figure 5

Area Telecommunication Site Analysis

Source - siteviewer.comreg.ie;



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

- ⓿ Proposed Development
- ❶ Premier Inn
- ❷ Boroimhe Shop Centre
- ❸ Nevinstown Mast
- ❹ Airside Retail Park
- ❺ Towercom Mast
- ❻ Ryanair Headquarters
- ❼ Pavilion Shopping Centre
- ❽ Swords Village
- [1] Fingal CC [2] The Plaza
- [3] Colourtrend Mast
- ❾ Swords West
- [1] A&T
- [2] CH Robinson
- [3] Seamount ESB Mast
- ★ Kettles Ln Mast

DRAFT

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Client
Bartra Propco 23 Limited

Project
Mountgorry LRD

Option	1
Date	17/09/2024
File Name	Mountgorry LRD

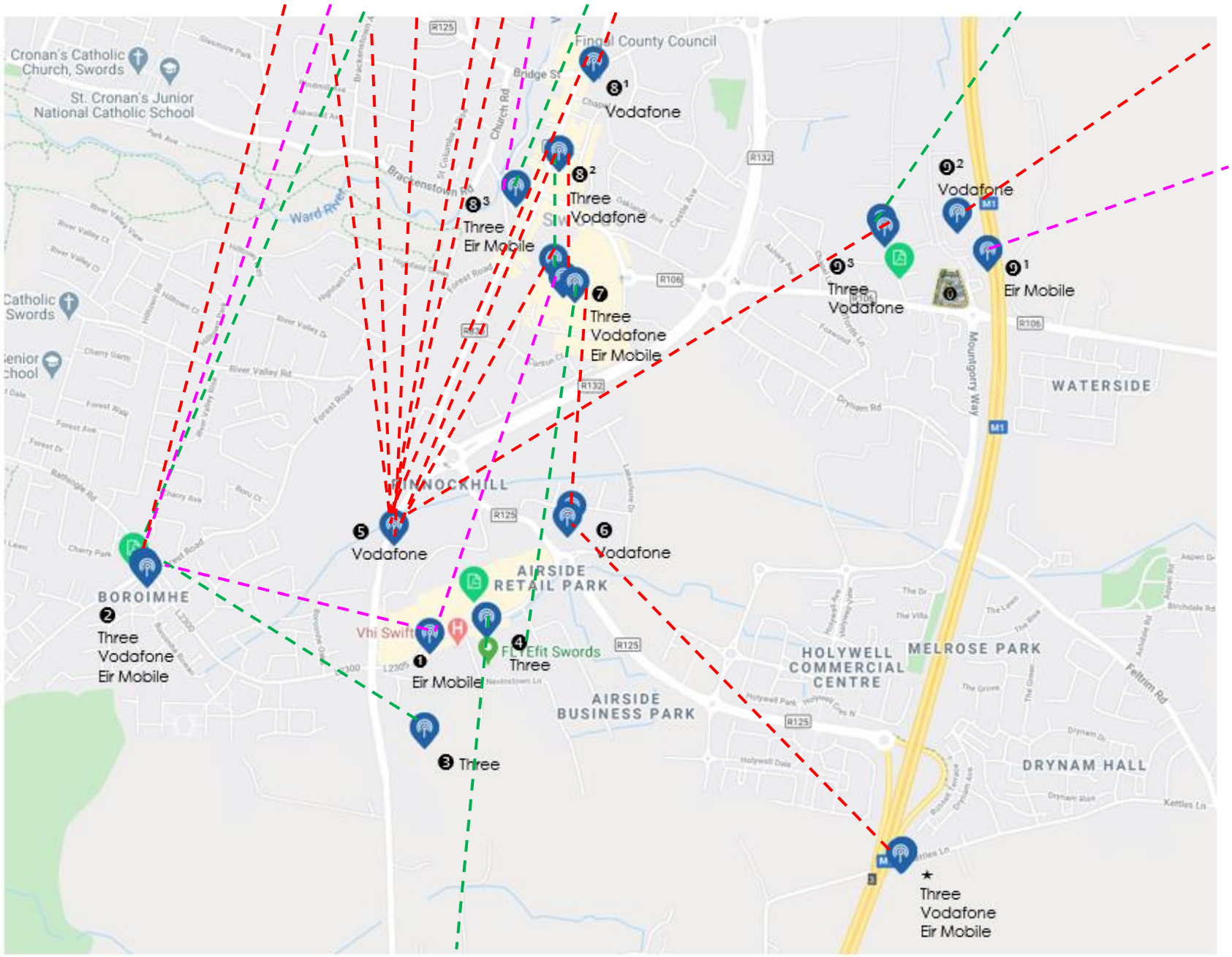
Drawing:
Area Site Analysis

Building	Drawing No.	Zone	Rev
SPN	B 2724		1

Figure 6

Microwave Transmission Link Analysis

Source - siteviewer.comreg.ie, ISM



Note
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Three Transmission Link
Vodafone Transmission Link
Eir Transmission Link

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Link Analysis

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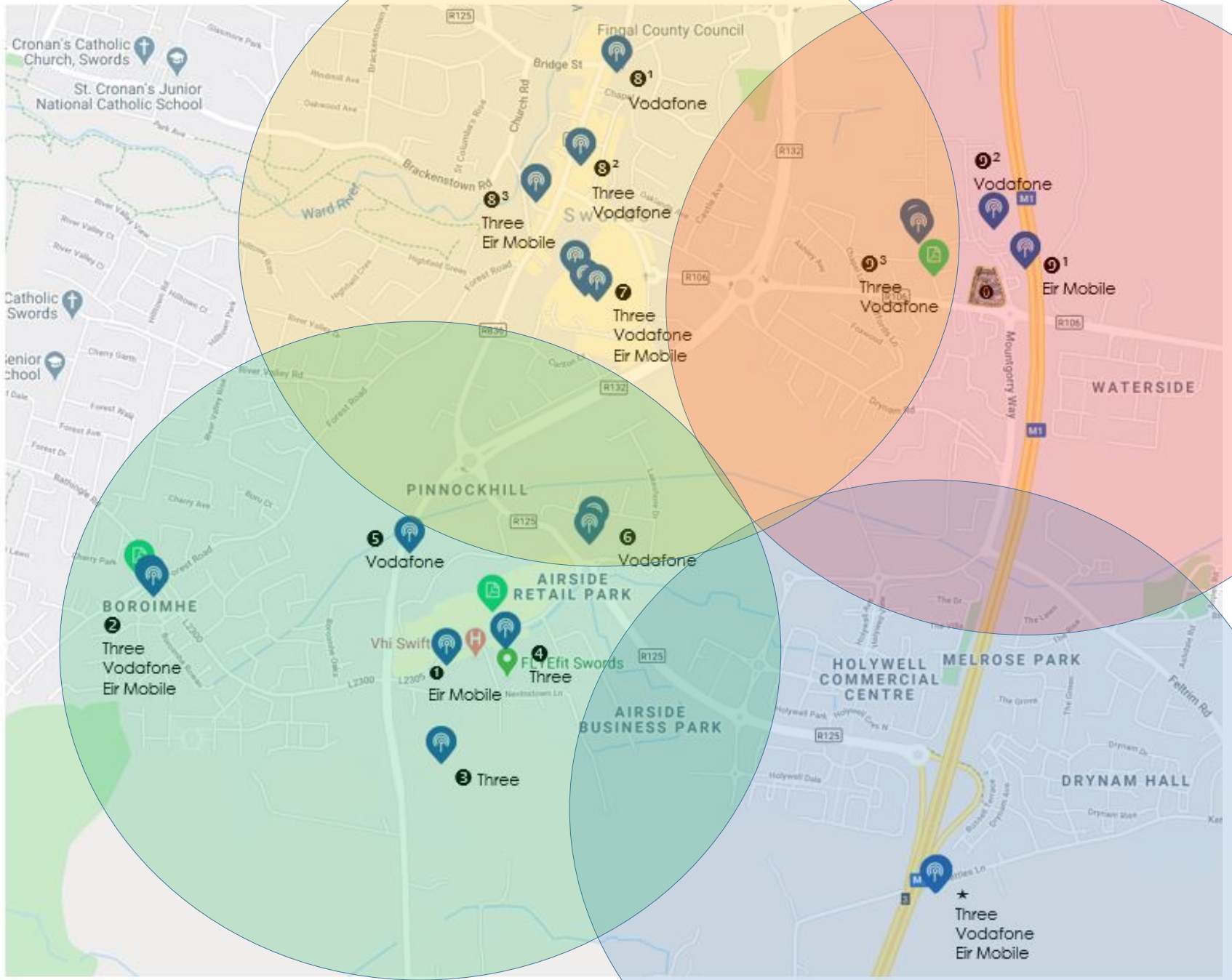
	B 2724		1

Figure 7

Drive Test Data

Source - siteviewer.comreg.ie, ISM



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This drawing to be read with relevant Consultant Drawings

- Multiple Cell IDs
  - ★ Kettles Ln Mast
- Multiple Cell IDs
  - ❼ Pavilion Shopping Ctr
  - ❽ Swords Village
    - ¹ Fingal CC ² The Plaza
    - ³Colourtrend Mast
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