

Appendix 13. Material Assets

13.1 Telecommunications Report

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Telecommunication Impact Assessment Report

DEVELOPMENT SEA GARDENS PHASE 2

07 February 2025

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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 Wicklow 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 Shankill Property Investments Limited (hereinafter referred to as the "Applicant")

The Development: means the proposed development situated on the former Bray Golf Course lands in Bray, County Wicklow (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 Shankill Property Investments Limited (the "Applicant") within its submission to Wicklow County Council (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 Authority does not impact on any existing Telecommunication Channels at the time of the assessment, and therefore is not required to make any allowances for the retention of important Telecommunication Channels.

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 6 main areas in the delivery of telecommunication services:

- (1) Telecommunication Asset Management Cellular and Fixed Line Fibre Optic.
- (2) Telecommunication Contract and Licensing.
- (3) Radio Frequency technology.
- (4) Microwave Transmission technology.
- (5) In-building distributed antenna systems.
- (6) Fixed Line fibre 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 10 in-building distributed antenna systems, and 2 large managed fibre optic networks.



DEVELOPMENT DESCRIPTION

Shankill Property Investments Limited (the applicant) is seeking permission from Wicklow County Council (WCC) for a proposed development on a site of approximately 11 hectares located on the former Bray Golf Course lands in Bray, County Wicklow. This proposed development pertains to Sea Gardens Phase 2, which is part of the Sea Gardens Masterplan (previously known as the Harbour Point Masterplan). The Masterplan has been developed by the applicant in collaboration with a multidisciplinary team.

In summary, the application for Sea Gardens Phase 2 proposes a mixed-use development comprising residential (c. 41,013 sq.m), retail/retail services (c. 8,155 sq.m), and commercial (c. 10,961 sq.m) spaces. The residential component will comprise 341 residential units (94 houses, 106 duplex units, and 141 apartments located in Blocks E and H). In addition, a hotel is proposed in Block I, a public house in Block E, a childcare facility and a medical centre in Block H, and retail/retail services units distributed in Blocks E, G, H and I. The proposed development will also provide private, communal, and public open spaces, along with car and bicycle parking for residents and visitors. An internal road network for vehicles, cyclists, and pedestrians will connect to the existing transport networks. All associated development infrastructure will also be provided, including public lighting, hard and soft landscaping, utilities, drainage, and clearance, demolition and removal of existing structures on site.

The proposed heights are as follows: houses will be 2 storeys, duplex units will be 2-3 storeys, Block E will be 3-15 storeys, Block G will be 1-2 storeys, Block H will be 3-4 storeys and Block I will be 3-7 storeys.

Sea Gardens Phase 2 will complement the permitted Sea Gardens Phase 1A (construction of which is nearing completion) and Phase 1B, as well as the future Phase 3, which will be the subject of a separate application. Phase 3, located adjacent to the River Dargle, is expected to accommodate approximately 362 residential units above a podium, including approximately 14,000 sq.m of retail and other uses. The building heights in Phase 3 will range from 6-9 storeys. This area has been included in the current application for Sea Gardens Phase 2 to allow for temporary use during construction for storing materials and site facilities.



SITE LOCATION/LAYOUT MAP

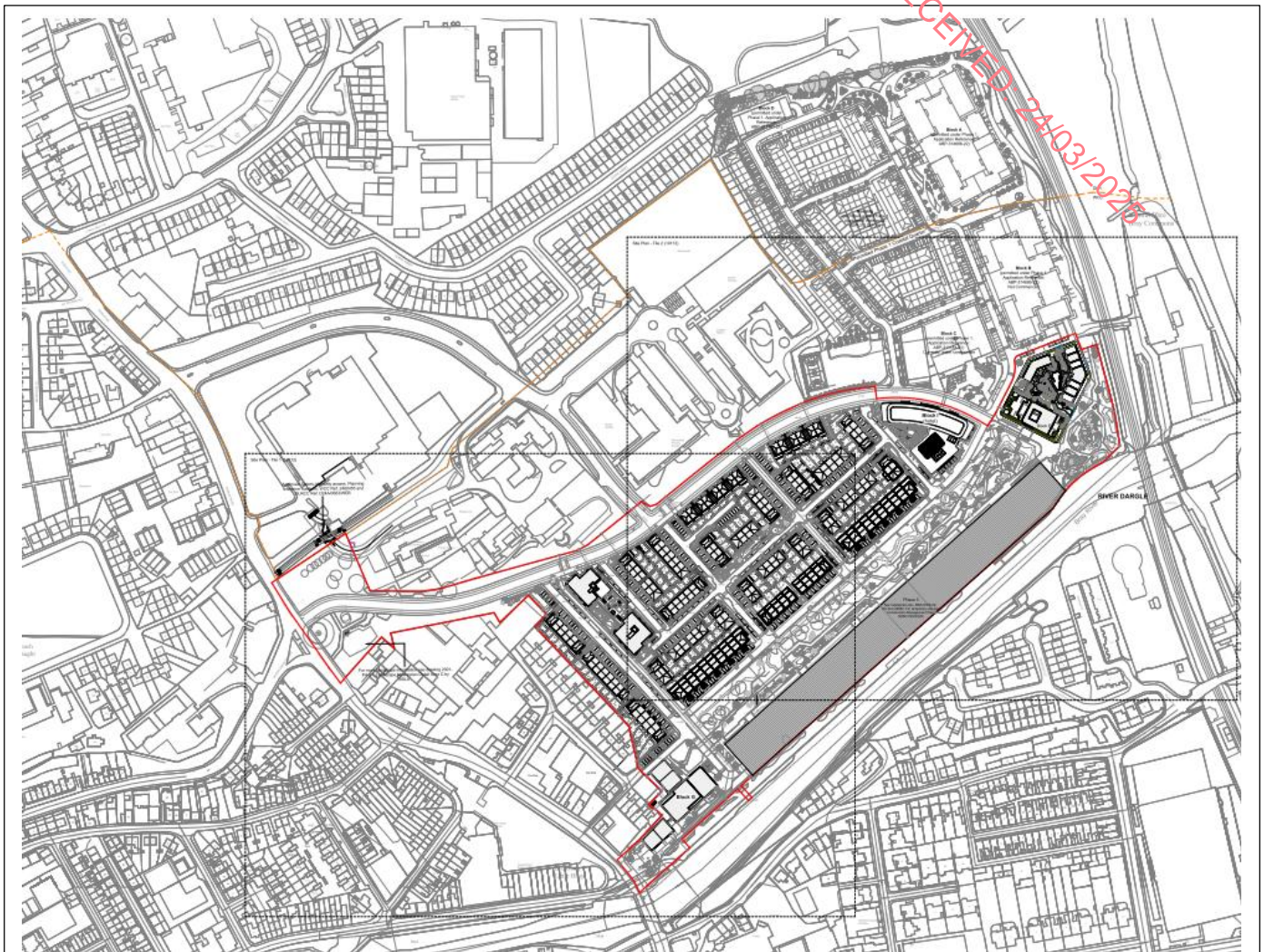


Figure 1

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 the proposed development.

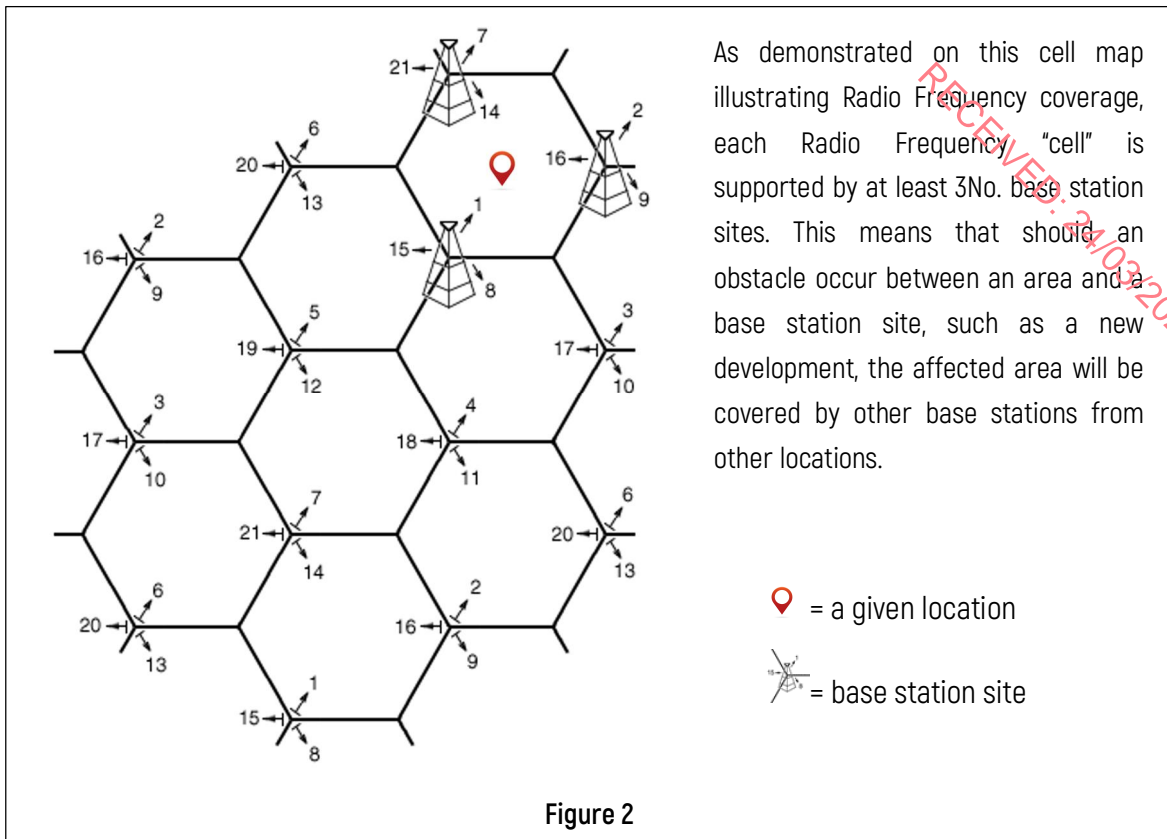
Radio Frequency links & Microwave Transmission Links are used in Ireland's mobile phone and fixed wireless networks and disseminate at an average above ground level height of 20m, making them the most relevant Telecommunication Channels to be assessed in relation to the height and scale of a new development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

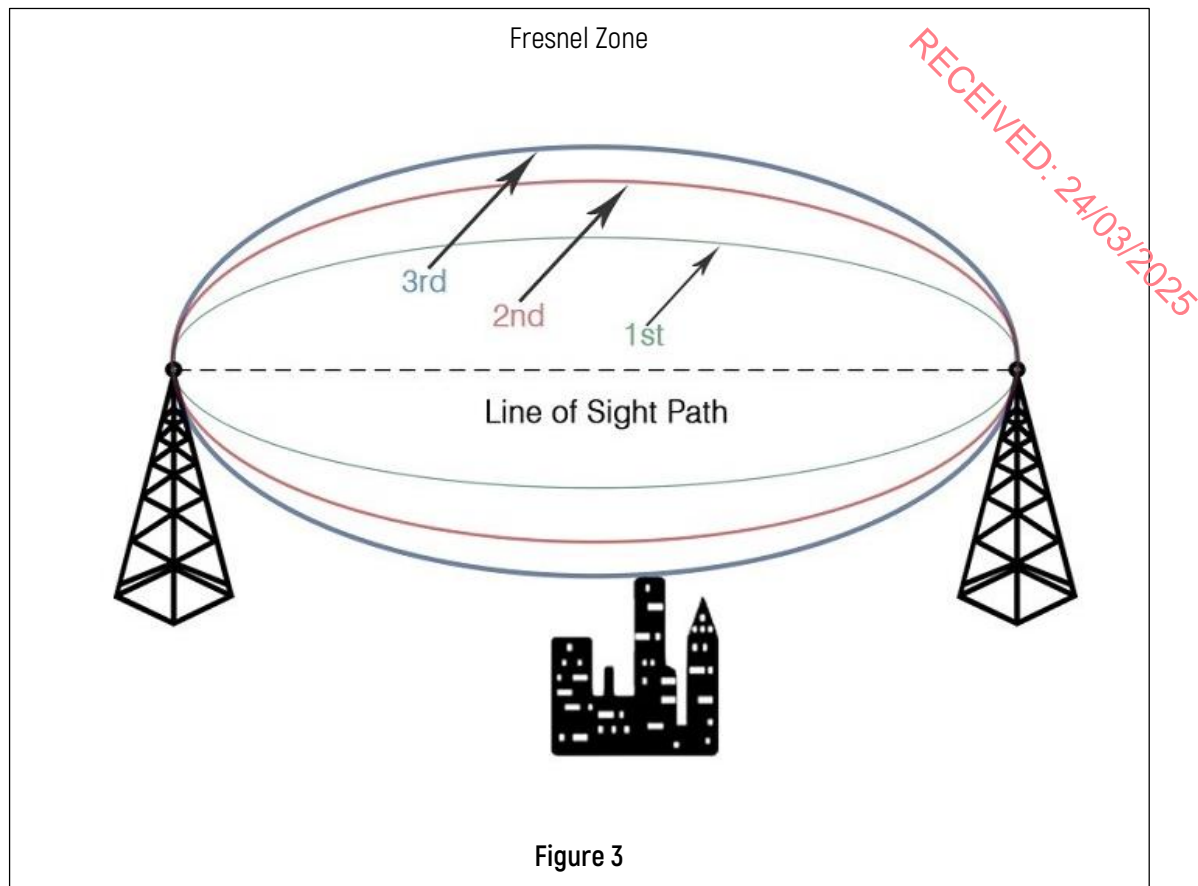




Cellular networks offer a number of desirable features, but most notably, additional cell towers can be added indefinitely and are not limited by the horizon, therefore it can be considered **indeterminable** as to whether a new development affects the Radio Frequency coverage of a geographical area 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 receiving 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 also 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. Please 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. Please refer to Figure 7 of the appendices for full analysis

Our assessment identified that the 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 a typical cell pattern for semi-urban/semi-rural Radio Frequency coverage. The drive 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 7 and are not reliant on Radio Frequency coverage from any one cell that would be obstructed by the Development.

Lastly, it is important to note however, that the Development is in close proximity to the Solus Water Tower telecommunication antenna site (Refer to Figure 4), which is home to a moderate to high concentration of Telecommunications Channels, with a low to moderate concentration of Microwave links and a moderate to high concentration of Radio Links.



While we've recorded that two Microwave links traverse quite close to Block 1 (Hotel), we conclude that the Development will not impact these Telecommunication Channels as the height and site elevations of the Development are **not** blocking the Telecommunication Channels currently emanating from this telecommunication antenna site.



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.

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)

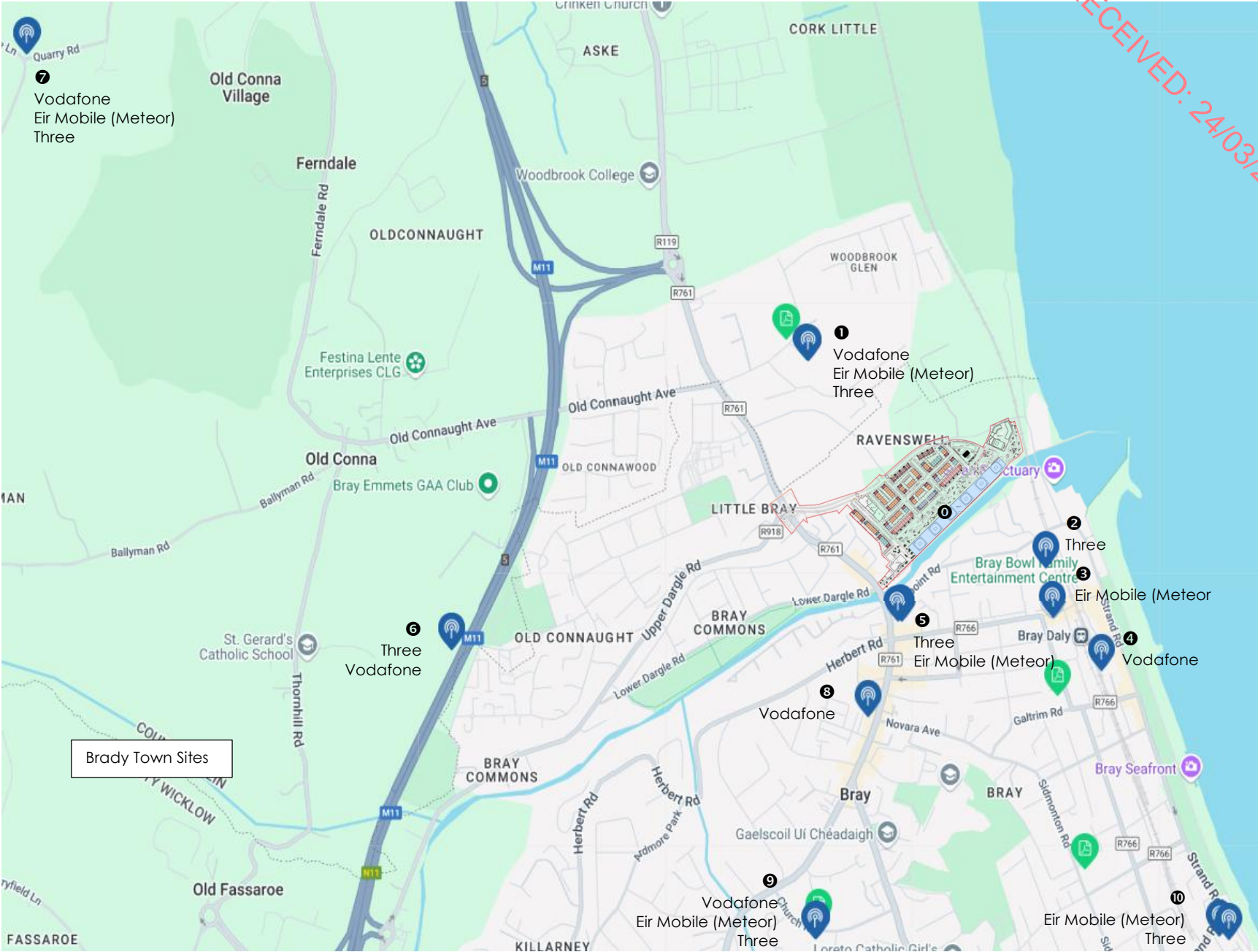
Figure 6: Identification of Microwave links disseminating from neighbouring registered and
documented telecommunication sites (Microwave Link Analysis)

Figure 7: Drive Test Data - Identification of local area Cells by Cell ID (Cell Identification Analysis)

Figure 5

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 Solus Water tower
- 2 Bray Wanders
- 3 Bray Bowl
- 4 Bray CIE
- 5 The Royal
- 6 Bray Emmet's GAA
- 7 Quarry Road
- 8 La Piazza
- 9 Christ Church
- 10 Star Casino

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Client
Shankill Property Investments
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Project
Sea Gardens Phase 2

Option	1
Report Date	28/11/24
File Name	Sea Gardens Phase 2

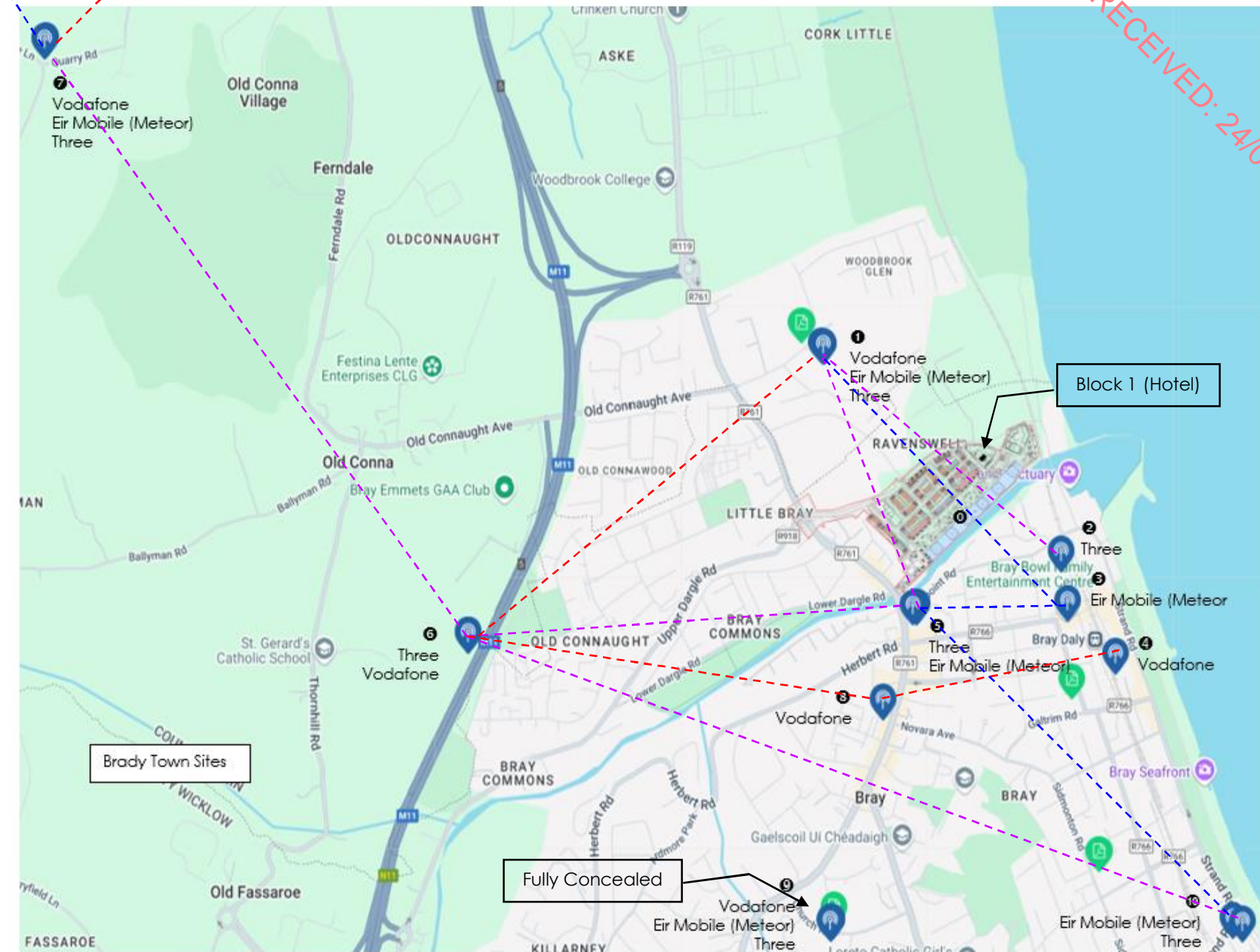
Drawing:
Area Site Analysis

Building	Drawing No.	Zone	Rev
SPN	J 2824		1

Figure 6

Microwave Link Analysis

Source: Comreg ISM Vodafone Three & Eir Mobile



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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Drawing:

Link Analysis

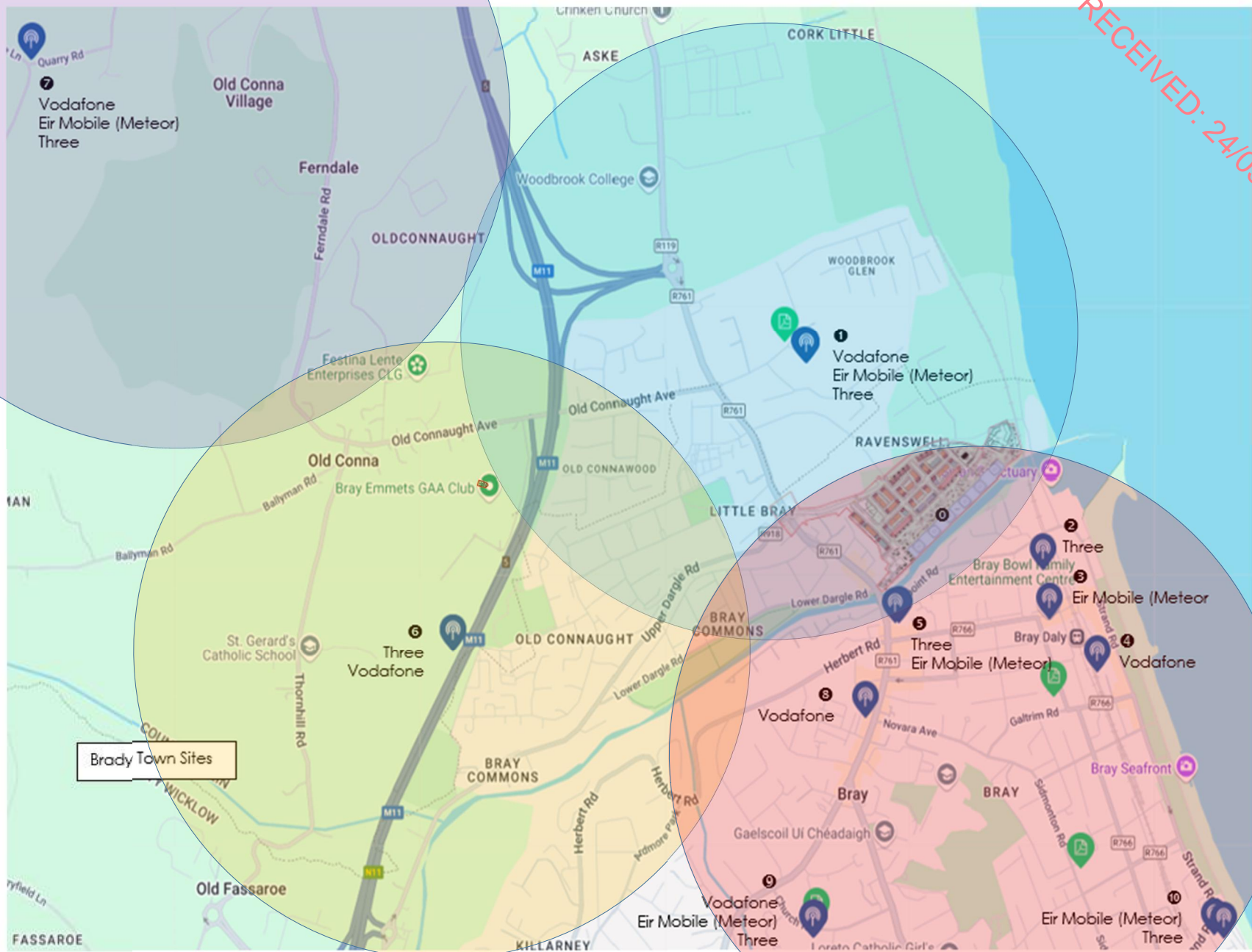
Building	Drawing No.	Zone	Rev
SPN	J 2824		1

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Figure 7

Drive Test Data - Identification of local area Cells by Cell ID (Cell Identification Analysis)

Source: 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 Solus Water tower
- Multiple Cell IDs
- 6 Bray Emmet's GAA
- Multiple Cell IDs
- 7 Quarry Road
- Multiple Cell IDs
- 2 Bray Wanders
- 3 Bray Bowl
- 4 Bray CIE
- 5 The Royal
- 8 La Piazza
- 9 Christ Church
- 10 Star Casino

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