



## Telecommunications Report - Section 3.2 of the Building Height Guidelines (2018)

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### DEVELOPMENT GALWAY PORT LRD

25 August 2025

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## DEFINITIONS

<b>Author:</b>	Independent Site Management Limited (hereinafter referred to as "ISM")
<b>Mitigation Measures:</b>	means the allowances made for the retention of important Telecommunication Channels (hereinafter referred to as "Mitigation Measures")
<b>Planning Authority:</b>	means Galway City Council (hereinafter referred to as the "Planning Authority")
<b>Radio Frequency:</b>	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.
<b>Microwave Links:</b>	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.
<b>Telecommunication Channels:</b>	means Radio Frequency links & Microwave Transmission links (hereinafter referred to as "Telecommunication Channels")
<b>Report Date:</b>	means the date which the assessment was carried out (hereinafter referred to as "Report Date")
<b>The Applicant:</b>	means The Land Development Agency (hereinafter referred to as the "Applicant")
<b>The Development:</b>	means the proposed development situated at a site of 1.621 Ha in Galway Port at Dock Road and Lough Atalia Road, Galway City (hereinafter referred to as the "Development")

## EXECUTIVE SUMMARY

Independent Site Management ('ISM') has been engaged to provide a specific assessment that the proposal being made by the proposal being made by The Land Development Agency (the "Applicant") within its submission to Galway City Council (the 'Planning Authority'), allows for the retention of important Telecommunication Channels ("Telecommunication Channels") such as microwave links, to satisfy the criteria of both Section 3.2 of the Building Height Guidelines (2018) and Chapter 3, Section 3.2 of the Urban Development and Building Height Guidelines as referenced in Chapter 1, Section 1.8.5 of the Galway City Development Plan 2023-2029.

To provide this assessment, ISM reviewed the Applicant's proposed development (the "Development"), together with their proposed allowances to retain relevant Telecommunication Channels 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 allows for the retention of important Telecommunication Channels, such as Microwave links, and therefore satisfies both the criteria of Section 3.2 of the Building Height Guidelines (2018) and Chapter 3, Section 3.2 of the Urban Development and Building Height Guidelines as referenced in Chapter 1, Section 1.8.5 of the Galway City Development Plan 2023-2029.

## ABOUT THE AUTHOR

ISM is a consultancy firm and asset management company that provides telecommunication consultancy and telecommunication 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 over 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 stations 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

Galway City Council – The Land Development Agency intends to apply to Galway City Council for permission for a 'Large-Scale Residential Development' (LRD) at a site of 1.621 Ha in Galway Port at Dock Road and Lough Atalia Road, Galway City, and extending to include parts of both roads for road infrastructure works and water services infrastructure works.

The proposed development principally consists of: the demolition of the existing office / bus depot building (370.2 sq m) and ancillary building (26.0 sq m); the partial demolition of the existing ESB sub-station and ancillary building (67.4 sq m); the demolition of existing boundary walls at the south-west and north-west; and the construction of a mixed-use development.

The proposed mixed-use development primarily comprises: 356 No. residential apartments (172 No. 1-bed, 169 No. 2-bed and 15 No. 3-bed); crèche (255.9 sq m); 2 No. café/restaurant units (totalling 428.4 sq m); and 1 No. retail unit (156.0 sq m).

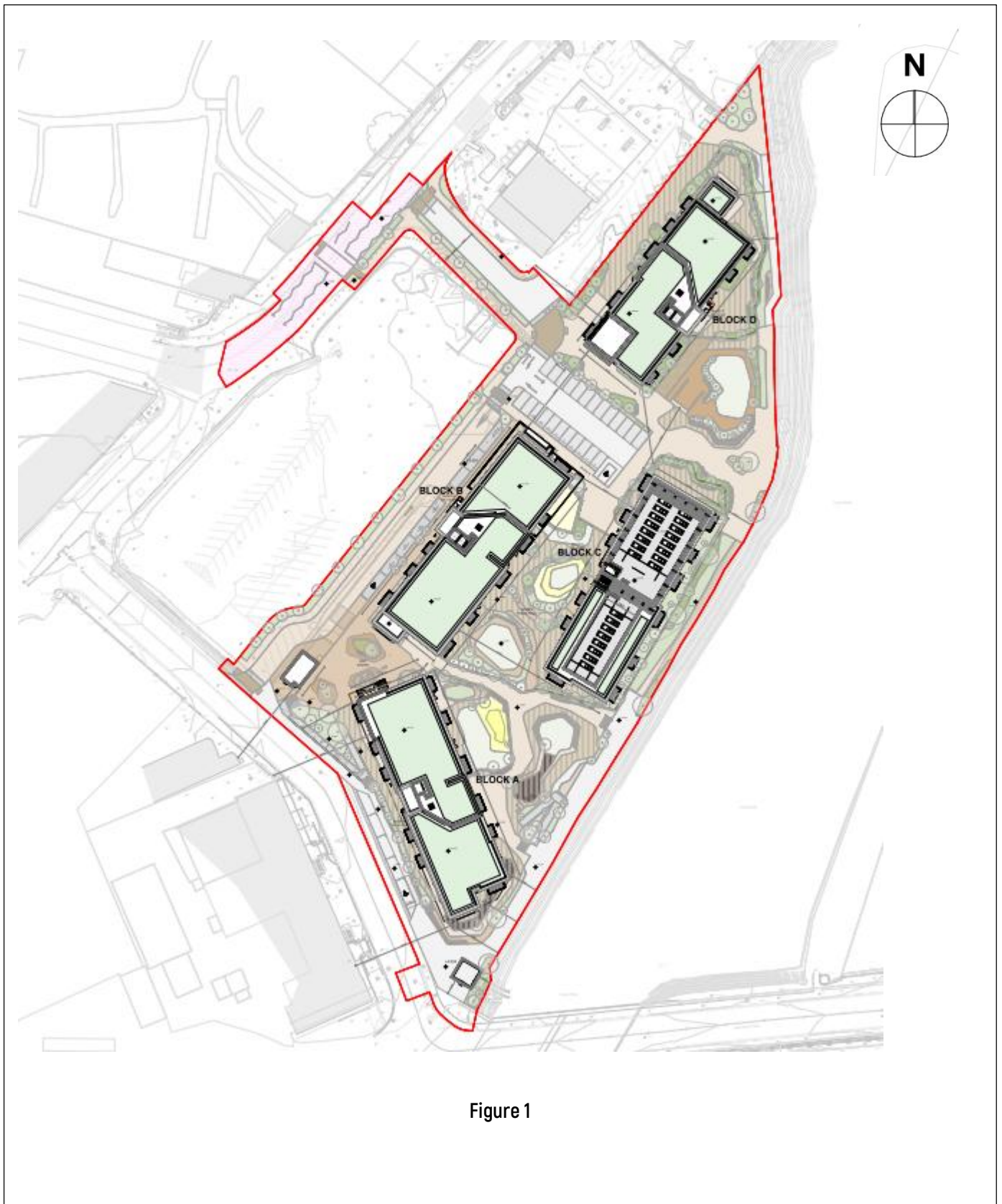
The development has a total floor area of 32,096.0 sq m and is primarily proposed in 4 No. blocks (identified as A-D) that generally range in height from 6 No. to 13 No. storeys: Block A ranges from 6 No. to 9 No. storeys; Block B ranges from 6 No. to 11 No. storeys; Block C is 6 No. storeys; and Block D ranges from 6 No. to 13 No. storeys.

The proposed development also includes: new internal street and pedestrian network, including a one-way vehicular route at the north-western side of the site and new junctions with Dock Road at the south-west and with the access road from Lough Atalia at the north-west; upgrades to Lough Atalia Road and the access road from it at the north-west of the site, including the provision of a new toucan pedestrian/cycle crossing at Lough Atalia Road; upgrades to the footpath and road interface with Dock Road to the south-west; 37 No. car parking spaces; 1 No. set-down/delivery bay; 741 No. cycle parking spaces; hard and soft landscaping, including as public open spaces and communal amenity spaces; private amenity spaces as balconies and terraces facing all directions; boundary treatments; public lighting; bin stores; double sub-station; plant rooms; green roofs; rooftop lift overruns and plant; rooftop telecommunications, plant and enclosure at Block C; recladding of the existing sub-station and pumping station; 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.

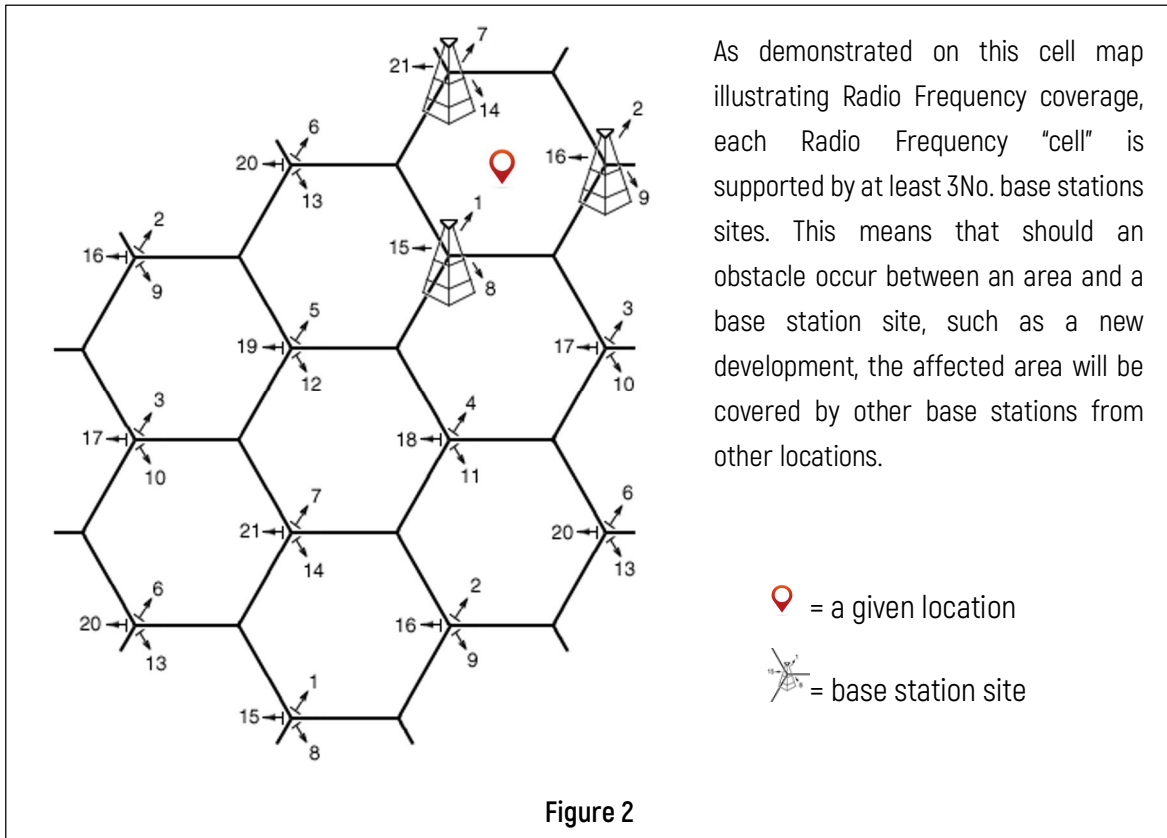
Mobile phones send and receive signals via links from nearby antenna sites or cellular towers, technically known as base stations, using Radio Frequency waves. Microwave Transmission links use microwave dishes to "transmit" from these base stations to other base stations forming a network. Radio Frequency 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.



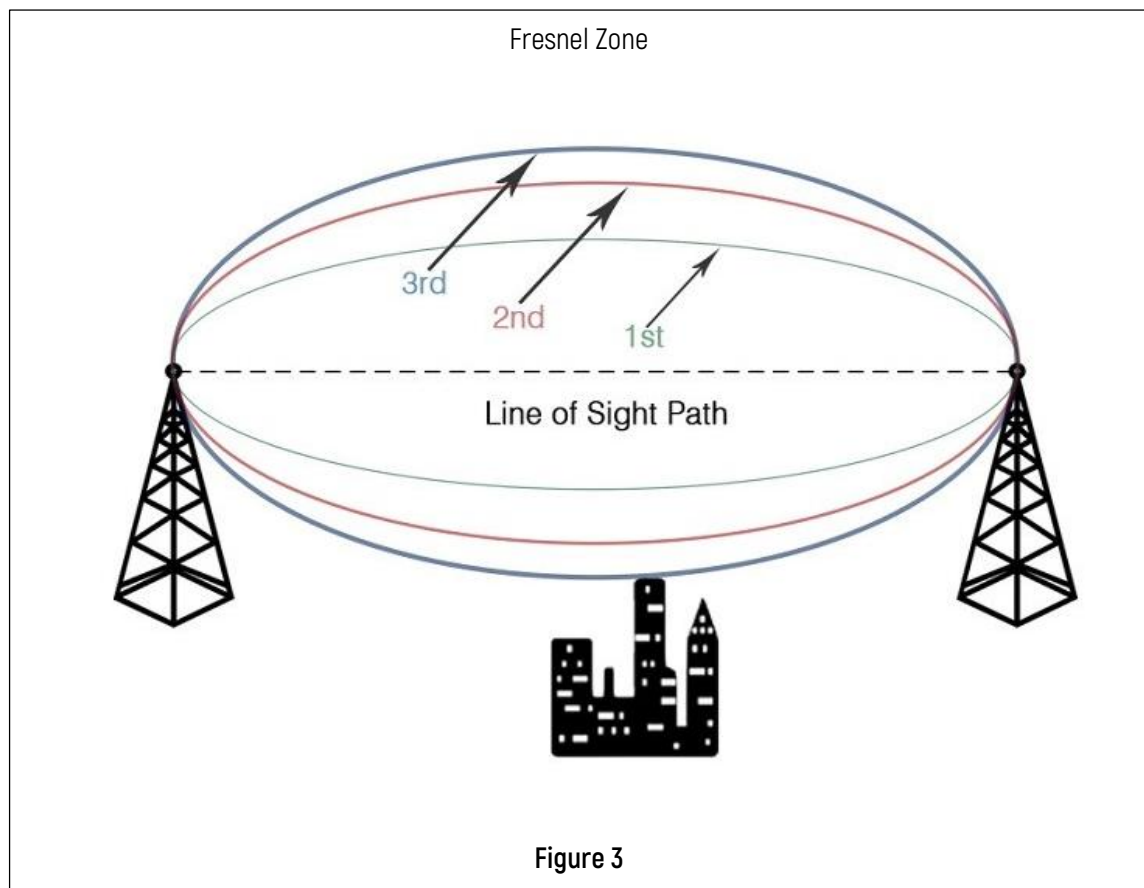




Cellular networks offer a number of desirable features, but most notably, additional cell towers can be added indefinitely and are not limited by the horizon, therefore it can be considered **indeterminable** as to whether a new development affects the Radio Frequency coverage of a geographical area 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 Links that will require the Applicant to make specific allowances for their retention ("Mitigation Measures").

Our assessment has not identified any Radio Frequency links that will require the Applicant to make specific allowances for their retention.

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 sites 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 urban Radio Frequency coverage. The drive 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 7 and are not reliant on Radio Frequency coverage from any one cell that would be obstructed by the Development.



Notwithstanding the fact that ISM did not identify any direct impact to either Telecommunication Channels such as Microwave Links or Radio Frequency links, ISM did identify a significantly high concentration of telecommunication channels emanating from multiple sites within a close proximity to the Development which would be typical of an urban centre wireless telecommunication environment.

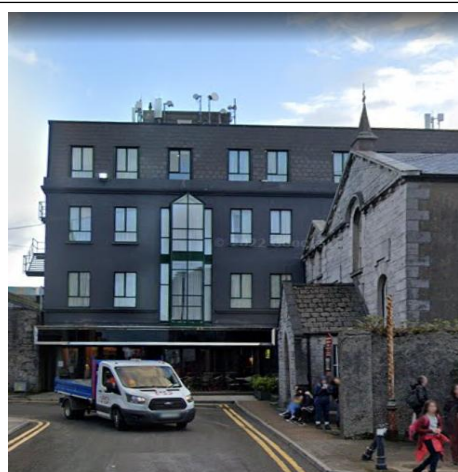
Most notably:

- 📍 180m (approx.) to the north by northeast of the Development, situated within CIE lands at the railway bridge, is a moderate to large capacity telecommunication mast (Irish Rail) being utilised by 2No. Irish mobile operators.
- 📍 250m (approx.) to the north by northwest of the Development, situated on the Victoria Hotel, is a moderate to large capacity telecommunication roof top site being utilised by 2No. Irish mobile operators.
- 📍 2700m (approx.) to the northeast of the Development, situated with the land of the air exchange is, 1 large high-capacity telecommunication mast roof top site utilised by 2 No. Irish mobile operators.

Please refer to Figure 4.

On each of these sites, plus numerous others in the city centre demise, there is a sizable number of antennae (Radio Frequency links) and transmission dishes (Microwave Links) and a strong likelihood that, as telecommunication networks expand, so will the proliferation of equipment on those structures and those on neighbouring sites.

### Telecommunications Sites City Centre



Victoria Hotel



Eir Exchange Mast



Irish Rail Mast

**Figure 4**

ISM is therefore recommending that the Applicant make a moderate provision for telecommunication infrastructure within its submission, should the height and scale of the development impact future Microwave links needing to reach the telecommunication masts identified herein.

## MITIGATION MEASURES

To provide an adequate allowance for the retention of future telecommunication channels that may be impacted by the height and scale of the Development, the Applicant is seeking planning permission to install:

- 6 No. 2m 2G/3G/4G antennas & 6 No. 5G antennas installed on support poles, affixed to the plant screen steel frame at roof level.
- 4 No. 300mm Microwave Transmission link dishes installed on 2No, support poles, affixed to the plant screen steel frame at roof level
- 2No. Equipment Cabinets mounted on steel support frame(s)
- and all associated ancillary equipment

This provides an adequate solution for the Applicant to mitigate the impact the Development will have on the high concentration of Microwave & Radio links emanating from the surrounding city centre area and, notably, the existing high-capacity mast sites, as well as providing some capability for future links that may or may not be required.

To adequately screen the infrastructure, the support poles used for the antennae and dishes will be installed behind the plant screen where material in front of the antenna will be Glass Reinforced Plastic to allow signal to travel through it.

Refer to Figures 8 & 9 of the appendices for full analysis and installation parameters for all the proposed replacement telecommunication infrastructure set out herein.

ISM can therefore conclude that the proposal being made by the Applicant within its submission to Galway City Council allows for the retention of important Telecommunication Channels, such as Microwave links, and therefore satisfies both the criteria of Section 3.2 of the Building Height Guidelines (2018) and Chapter 3, Section 3.2 of the Urban Development and Building Height Guidelines as referenced in Chapter 1, Section 1.8.5 of the Galway City Development Plan 2023-2029.

## 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", it's 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: Identification of local area Cells by Cell ID [Cell Identification Analysis]

Figure 8: Mitigation Measures (if required in future)

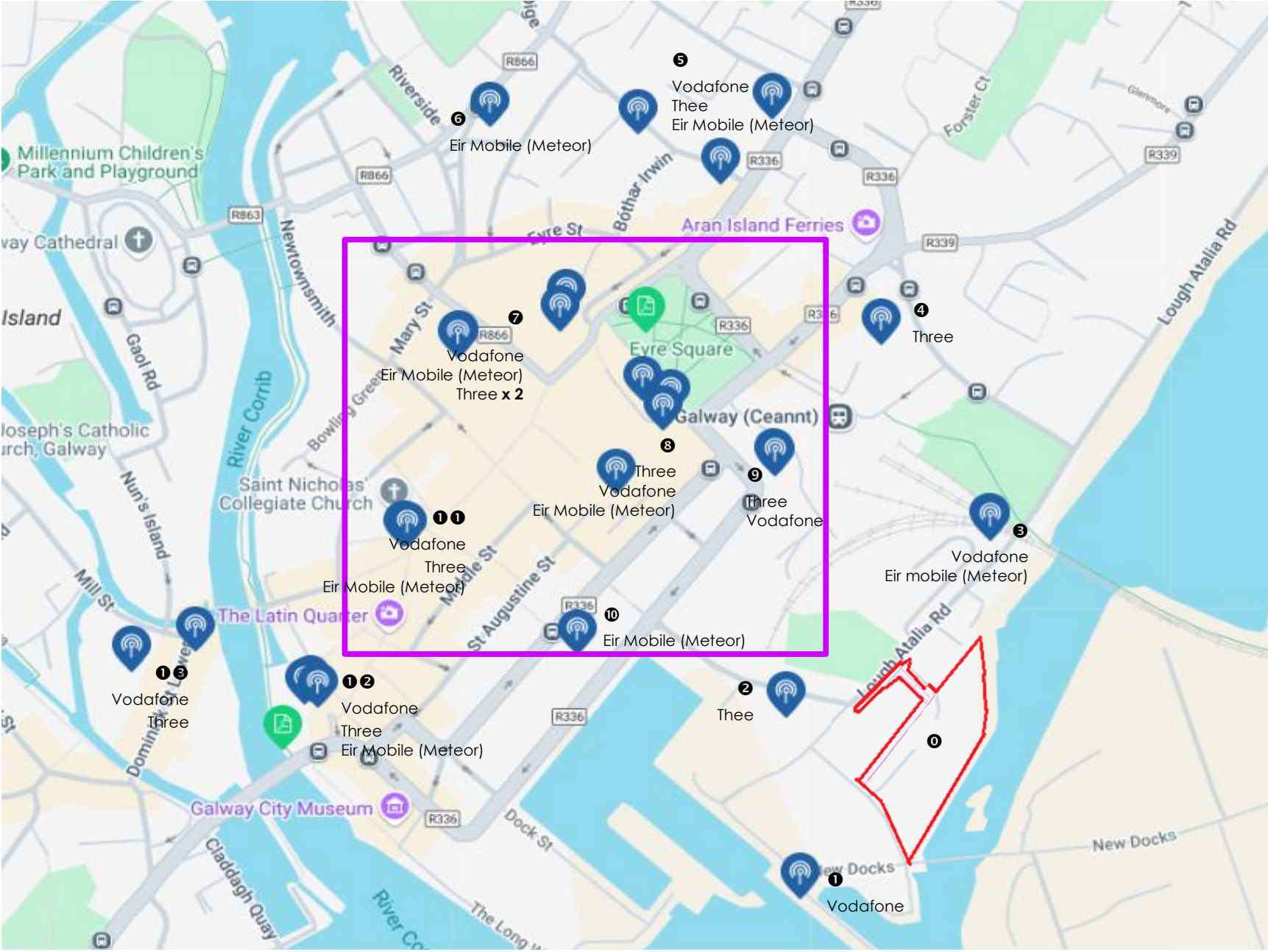
Figure 9: Mitigation Measures (if required in future)

Figure 5

Area Telecommunication Analysis

Source: Comreg

□ Denotes an area of significantly high concentration of telecommunication channels



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 Galway Docks
- 2 The Harbour Hotel
- 3 Irish Rail
- 4 Park House Hotel
- 5 Western /Corrib/ Citypoint
- 6 Wood Quay
- 7 Eglington St
- 8 Eyre Square Centre
- 9 Victoria Hotel
- 10 Hines Car Pk
- 11 High Street
- 12 Leonardos Hotel
- 13 Dominick St. /Gard

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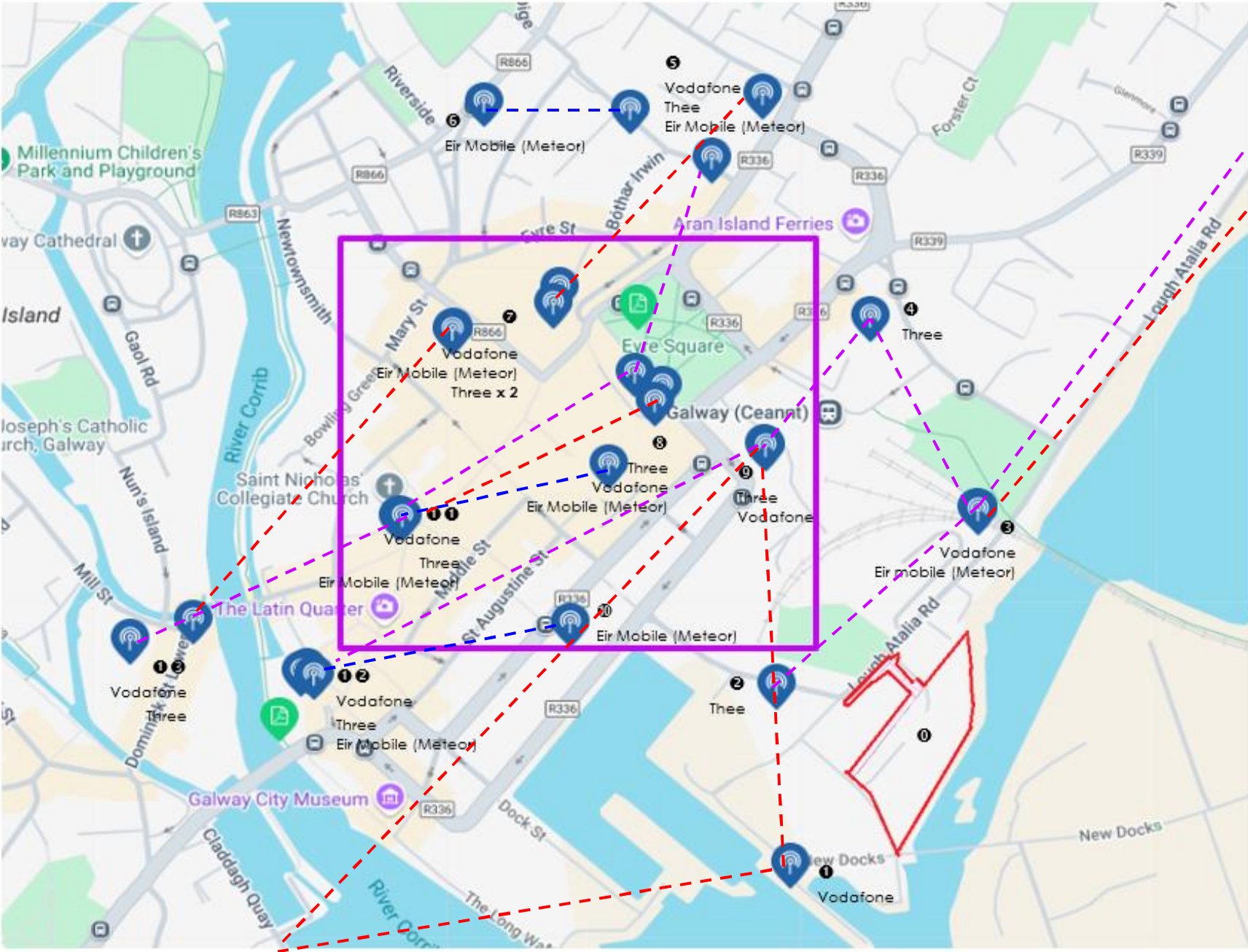
Client  
The Land Development  
Agency  
Project  
Galway Port LRD

Option	1
Report Date	22/01/23
File Name	Galway Port

Drawing:  
Area Site Analysis

Building	Drawing No.	Zone	Rev
SPN	A 2125		1






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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Option	1
Report Date	22/01/25
File Name	Galway Port

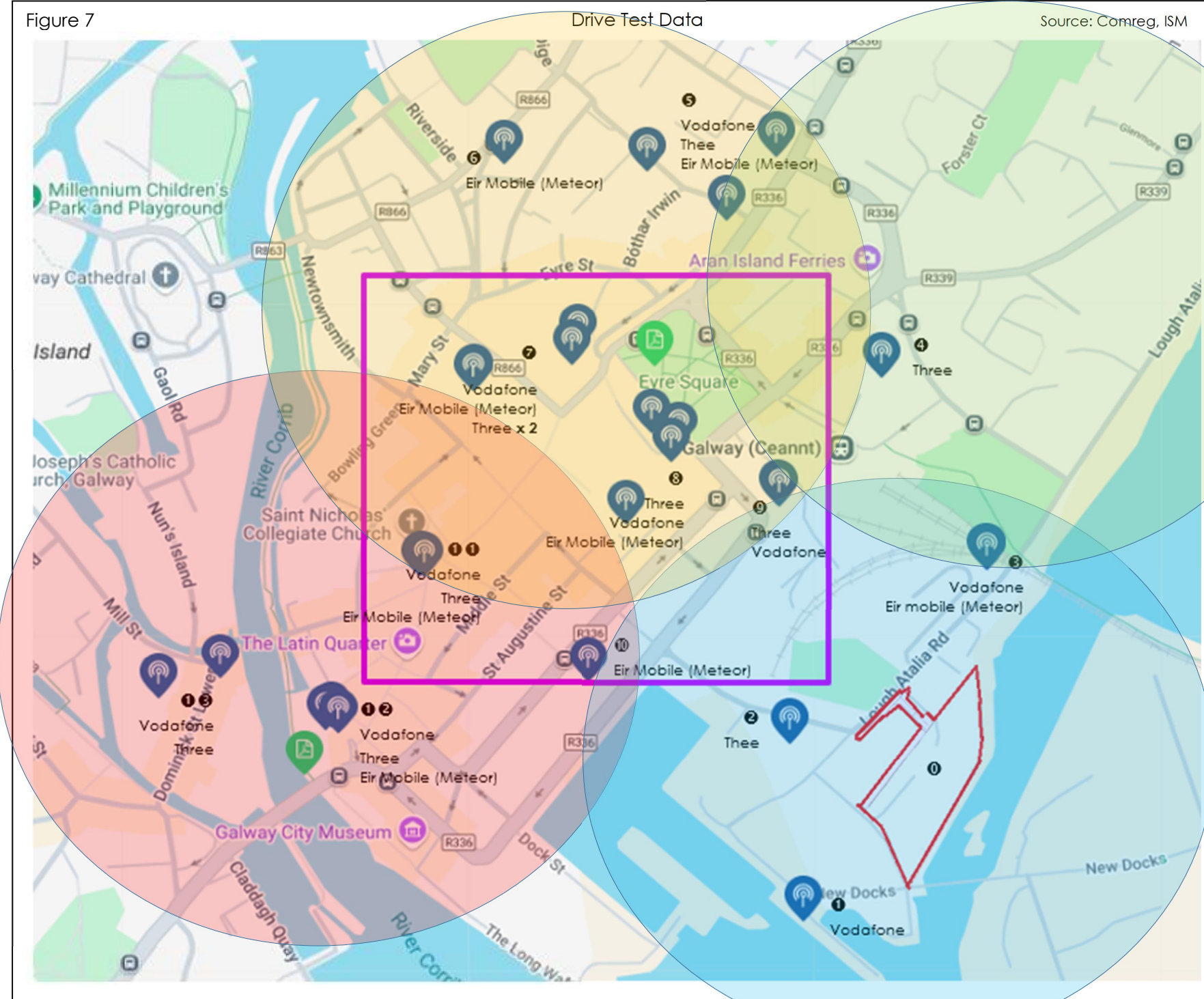
Drawing:			
Link Analysis			
Building	Drawing No.	Zone	Rev
SPN	A 2125		1



Figure 7

Drive 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
- Galway Docks
- The Harbour Hotel
- Irish Rail
- Multiple Cell IDs
- Western / Corrib/ Citypoint
- Wood Quay
- Eglington St
- Eyre Square Centre
- Victoria Hotel
- Multiple Cell IDs
- Irish Rail
- Park House Hotel
- Western / Corrib/ Citypoint
- Multiple Cell IDs
- Hines Car Pk
- High Street
- Leonardos Hotel
- Dominick St. /Gard

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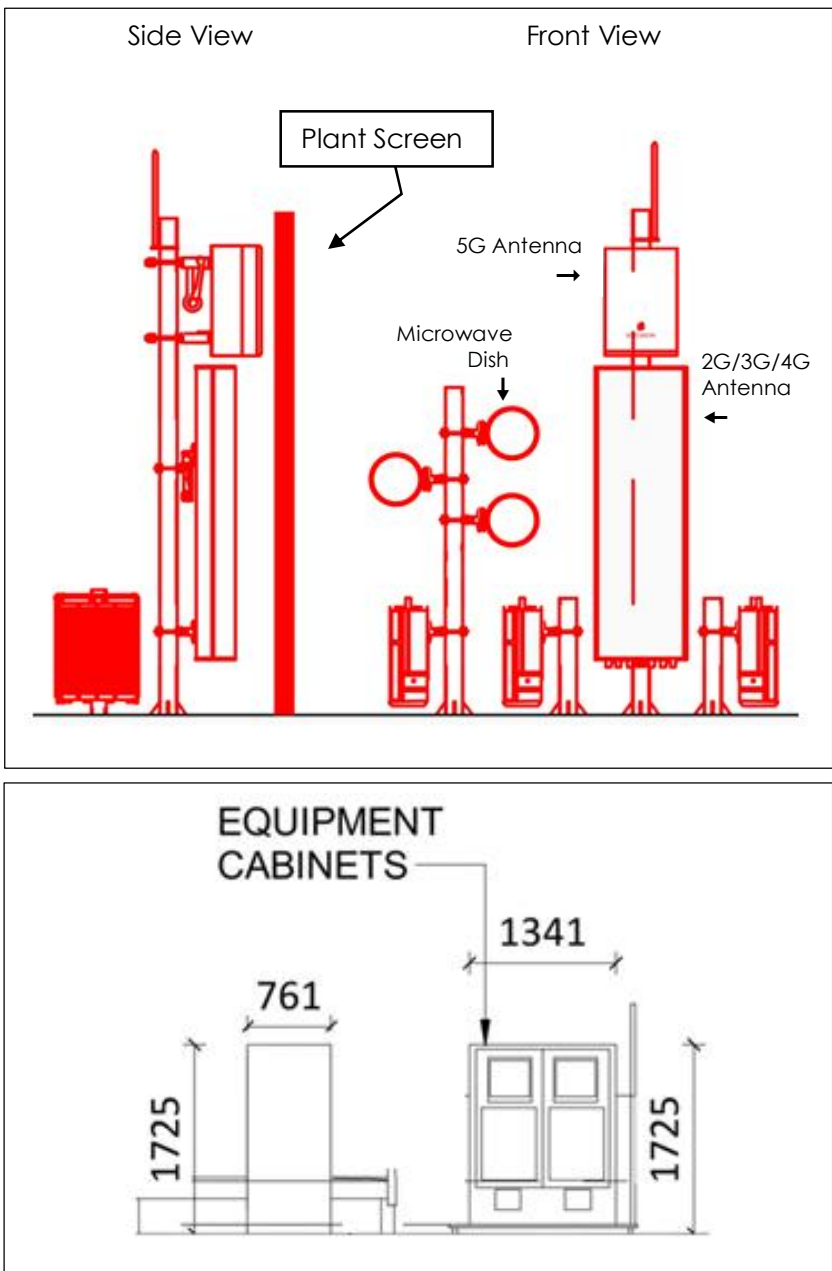
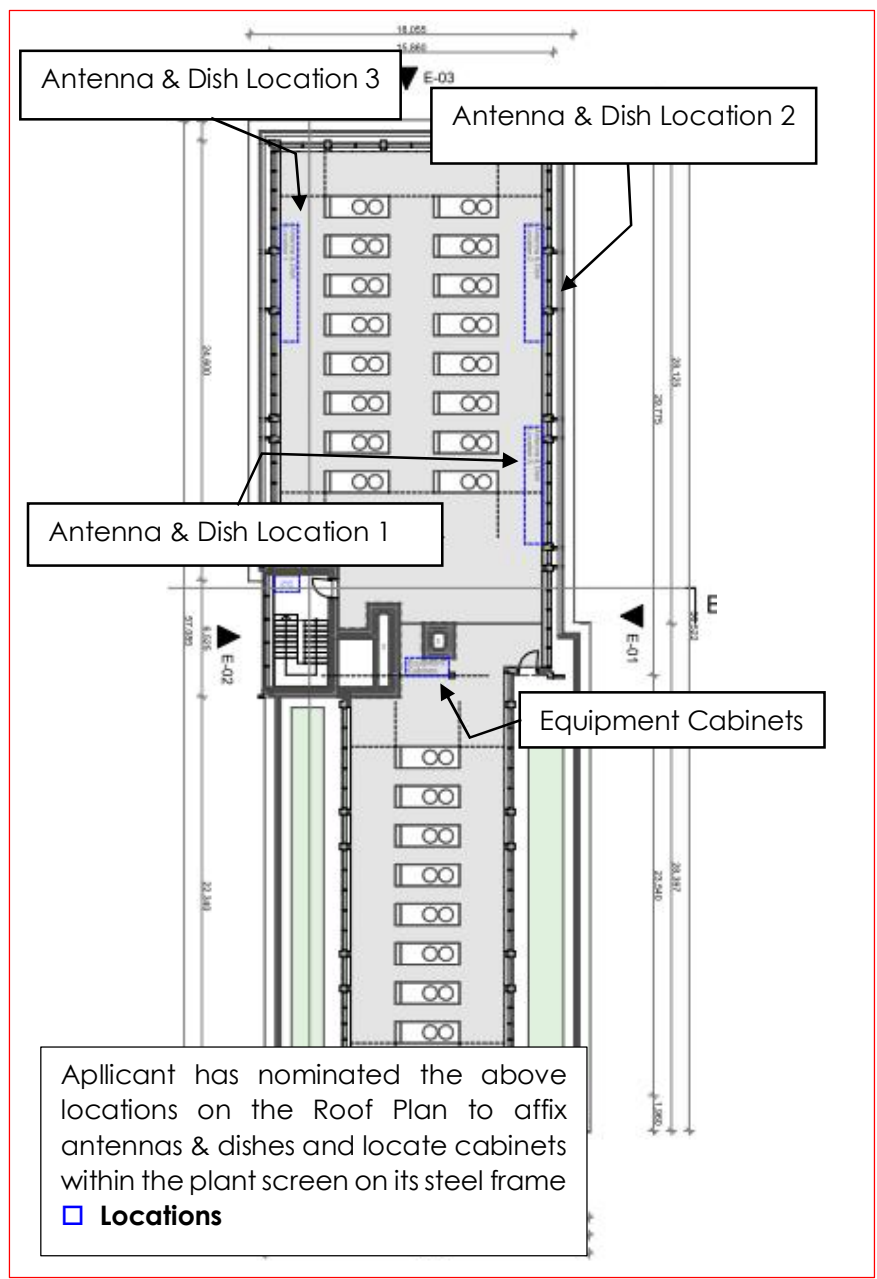
Drawing:  
Cell Identification Analysis

Building	Drawing No.	Zone	Rev
SPN	A 2125		1

Figure 8

Mitigation Measure Design (Microwave Transmission Links)

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

6 No. 2m 2G/3G/4G antennas &  
6 No. 5G antennas installed on  
support poles, affixed to the plant  
screen steel frame at roof level.

4 No. 300mm Microwave  
Transmission link dishes installed  
on 2No. support poles, affixed to  
the plant screen steel frame at  
roof level

2No. Equipment Cabinets  
mounted on steel support  
frame(s)

and all associated ancillary  
equipment

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Project  
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Option	1
Report Date	22/01/25
File Name	Galway Port

Drawing:  
Mitigation Measure

Building	Drawing No.	Zone	Rev
SPN	A 2125		1

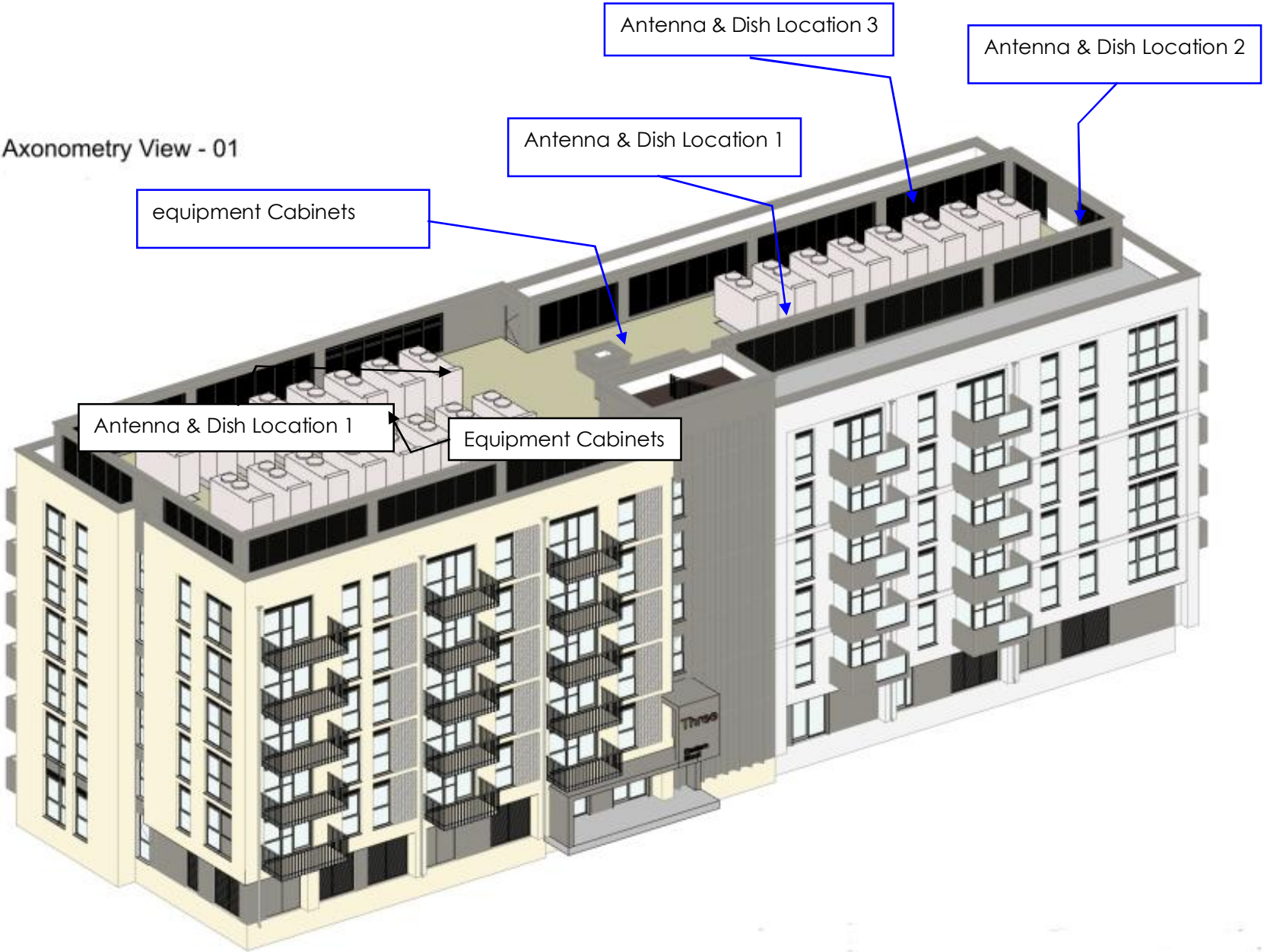
© Independent Site Management Limited



Figure 9

Mitigation Measure Design (Radio Frequency links)

Source: ISM



Note  
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Consultant Drawings

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Drawing:  
Mitigation Measure

Building	Drawing No.	Zone	Rev
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