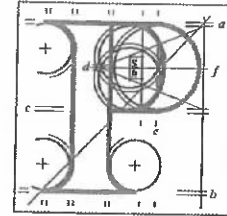


Our Case Number: ABP-316119-23

Planning Authority Reference Number:

Your Reference: Residents of Kilmainham Square
Apartments



**An
Bord
Pleanála**

Downey Chartered Town Planners
29 Merrion Square North
Dublin 2
D02 RW64

Date: 07 June 2023

Re: DART+ South West Electrified Heavy Railway Order - Hazelhatch & Celbridge Station to Heuston
Station, and Hesuton Station to Glasnevin
County Dublin and County Kildare

Dear Sir / Madam,

An Bord Pleanála has received your recent submission (including your fee of €50) in relation to the above-mentioned proposed Railway Order and will take it into consideration in its determination of the matter.

The Board will revert to you in due course with regard to the matter.

Please be advised that copies of all submissions/observations received in relation to the application will be made available for public inspection at the offices of the relevant County Council(s) and at the offices of An Bord Pleanála when they have been processed by the Board.

More detailed information in relation to strategic infrastructure development can be viewed on the Board's website: www.pleanala.ie.

If you have any queries in the meantime, please contact the undersigned. Please quote the above mentioned An Bord Pleanála reference number in any correspondence or telephone contact with the Board.

Yours faithfully,



Niamh Thornton
Executive Officer
Direct Line: 01-8737247

Tell	Tel	(01) 858 8100
Glaó Áitiúil	LoCall	1890 275 175
Facs	Fax	(01) 872 2684
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Ríomhphost	Email	bord@pleanala.ie

64 Sráid Maoilbhríde Baile Átha Cliath 1 D01 V902	64 Marlborough Street Dublin 1 D01 V902
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**Property: Kilmainham Square (The Old
Chocolate Factory) Apartments**

Location: Inchicore Road, Kilmainham, Dublin 8

**Submission to the Draft Railway Order
[DART+ South West Electrified Heavy
Railway Order 2023]**

May 2023

Prepared for
An Bord Pleanála

AN BORD PLEANÁLA	
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ABP-	
16 MAY 2023	
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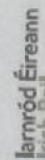
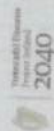
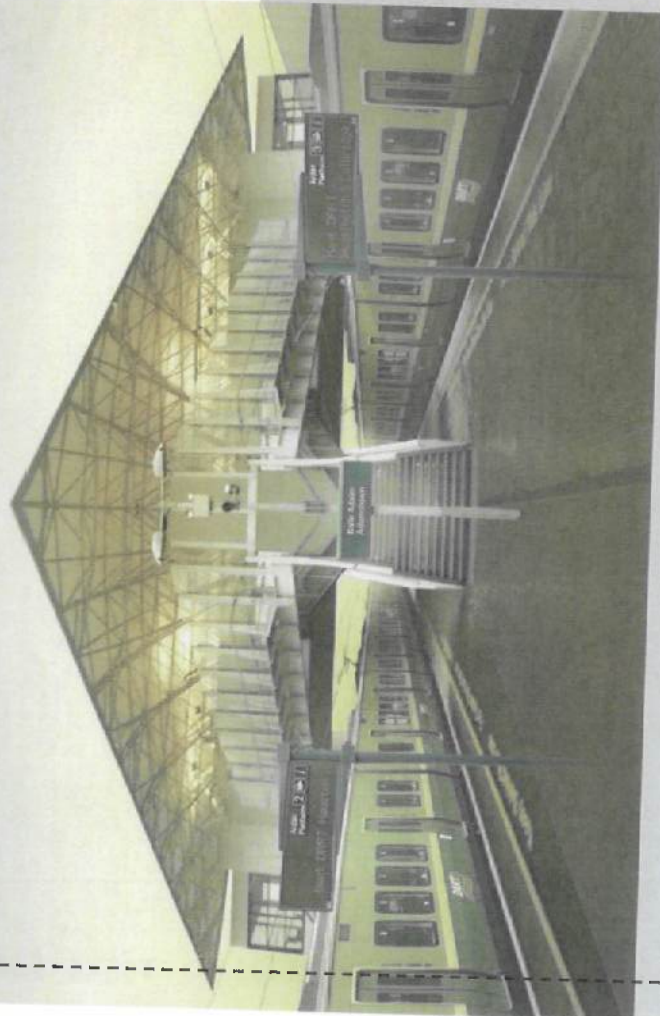
DOWNEY

29 Merrion Square, D02 RW64



Planning Report

February 2023



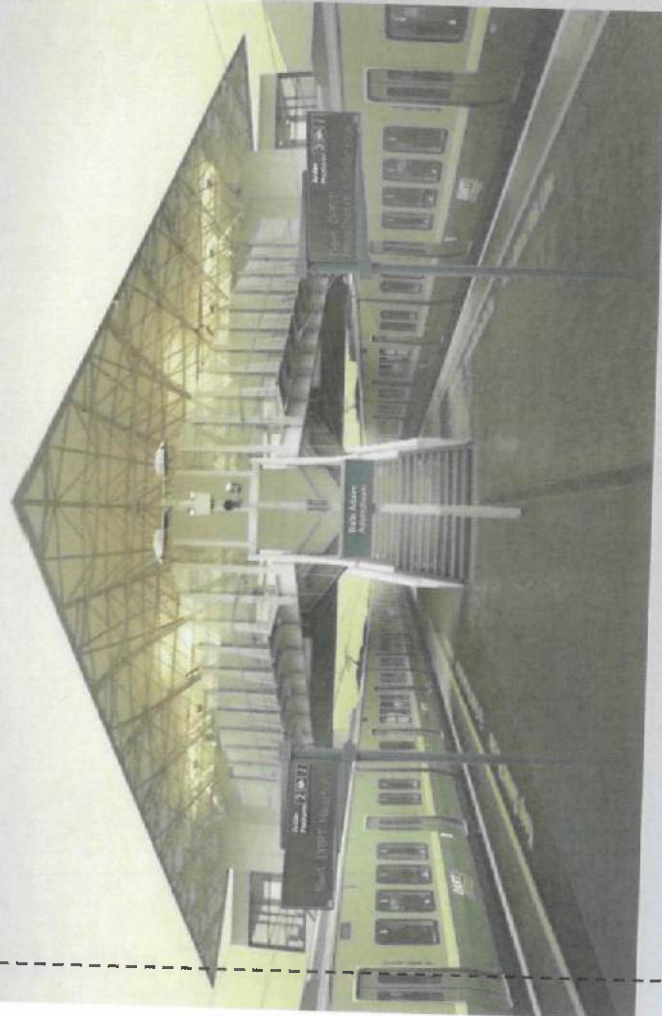
EXECUTIVE SUMMARY

With reference to the Draft Railway Order (DART+ South West Electrified Heavy Railway Order 2023), our clients welcome this strategic project and recognises the significance of its delivery to provide for a sustainable, safe, efficient, integrated, and accessible public transport service between Dublin City Centre and the areas of Drogheda, Maynooth, Dunboyne, Celbridge and Greystones

This submission has been prepared by DOWNEY in conjunction with Malone O'Regan Engineering Consultant, on behalf of our clients, the residents of Kilmainham Square Apartments at Inchicore Road, Kilmainham, Dublin 8 in relation to the proposed extension and upgrade of DART+ South West railway and its relationship with this established apartment development.

With respect to this property, our clients are seeking:

- 1) To ensure no disruption to public access of the building and its day-to-day uses and functions, in particular regarding traffic diversion when upgrading the junction.
- 2) To ensure no damage to the building and the boundary wall facing the railway, pre-construction and post-construction surveys, trials and monitoring is required. This is mainly concerned with the fact that the ground movement impact, as well as ground borne noise and vibration impact on the building during construction and operation, has not been incorporated within the Draft Railway Order.
- 3) To ensure all parts of the Kilmainham Square Development identified in this submission are subject to Stage 3 assessment, and subsequent stages of assessment in liaison with the property management in place.
- 4) To include mitigation measures to maintain noise, vibration and dust to the acceptable levels during construction, considering the additional lorry movements during construction.
- 5) To include mitigation measures to maintain noise, vibration and dust to the acceptable levels post-construction, whereby a more frequent railway service with the new longer trains is suggested to give rise to an elevated level of noise, vibration and dust.
- 6) To ensure no disruption and/or adverse impacts on internet connection as well as fibre optic cables running along the line during construction and post-construction.



- 7) To include recent and/or live planning applications/permissions within effective proximity to the site in the Construction Environmental Management Plan (CEMP) to allow for assessment of cumulative impact on the property (the 578-unit mixed-use development at Emmet Road as an instance).
- 8) The Kilmainham Square Development reserves the right to development of the subject property in the future, including property above and below ground, subject to normal planning criteria.
- 9) The Kilmainham Square Development request that noise and vibration mitigation measures to be included in relation to this section of the railway, including sound barrier, sliding slabs, partial roofing of the railway, compensation measures to upgrade apartments openings directly facing onto the railway, etc.
- 10) To ensure inclusion of mitigation measures in relation to biodiversity and air quality along this section of the railway due to close proximity to the Kilmainham Square Development.
- 11) Precedents to be applied to the risk assessments to ensure utilising best industry practice within the implementation of the proposed Project.
- 12) To ensure liaison of CIÉ and the future contractor with the residents of the Kilmainham Square Apartments to ensure consideration of all concerns and issues and to facilitate successful delivery of the railway.
- 13) To have an Oral Hearing on the Kilmainham Square Development and potential impacts of the proposed Project on this predominately residential development.

Aerial View of the Premises whereby approximate boundaries of the Kilmainham Square Development outlined in red along the apartment outlined in dashed black line.



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This submission is made in response to the statutory review of the Draft Railway Order. Accordingly, this submission has been prepared in the context of "Draft Railway Order; DART+ South West Electrified Heavy Railway Order 2023" which seeks to deliver an electrified network, with increased passenger capacity and enhanced train service between Hazelhatch & Celbridge Station to Heuston Station on the Cork Mainline, and Heuston Station to Glasnevin Junction via the Phoenix Park Tunnel Branch Line. The Draft Order is currently on public display. We would respectfully request that An Bord Pleanála consider the content within this submission. DOWNEY would like to thank the Board for the opportunity to make this submission, on behalf of our clients at The Kilmainham Square [The Old Chocolate Factory] Development at Inchicore Road, Kilmainham, Dublin 8.

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Downey Planning Document Control			
	Name	Date	Version
Prepared by	E.S. MIPI	08/05/2023	V_01_DRAFT
	E.S. MIPI	16/05/2023	V_02_DRAFT
Approved by	D.R MIPI	16/05/2023	V_02_FINAL

1.0 INTRODUCTION

This submission has been prepared by DOWNEY, Chartered Town Planners, 29 Merrion Square, D02 RW64, in conjunction with Malone O'Regan Engineering Consultant, Richview Office Park, Clonskeagh, Co. Dublin, on behalf of our clients, The Old Chocolate Factory 227 Residential Apartments and 4 Commercial Units at Inchicore Road, Kilmainham, Dublin 8, which relates to the DART+ railway extension and upgrade, and its potential impacts on this apartment block and its residents.

With reference to the Draft Railway Order (DART+ South West Electrified Heavy Railway Order 2023), our clients welcome this strategic project and recognises the significance of its delivery to provide for a sustainable, safe, efficient, integrated, and accessible public transport service between Hazelhatch and Celbridge Station (County Kildare) to Heuston Station Dublin.

2.0 OVERVIEW OF THE DRAFT RAILWAY ORDER

On 22nd March 2023, governed by Section 37 of the Transport (Railway Infrastructure) Act 2001 (as amended and substituted) ("the 2001 Act" hereinafter) and proposed within the definition of Strategic Infrastructure Development (SID) under Section 2 of the Planning and Development Act 2000 (as amended) ("the 2000 Act" hereinafter), the Córas Iompair Éireann (CIÉ hereinafter) submitted the Draft Railway Order for the DART+ South West Electrified Heavy Railway Order 2023 ("the proposed Project" hereinafter) to An Bord Pleanála.

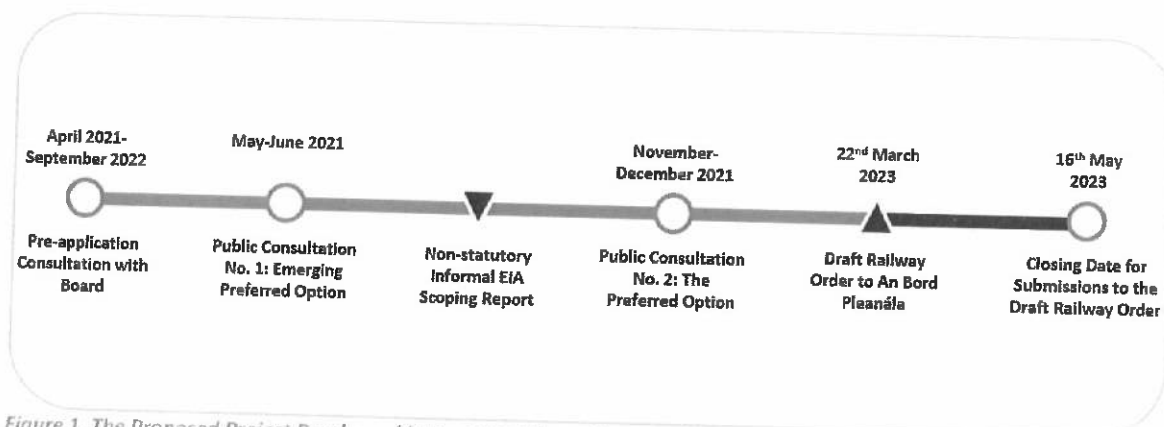


Figure 1. The Proposed Project Roadmap (dates sourced from the Planning Report enclosed with the application)

With an objective to "support urban compact growth and contribute to reducing transport congestion and emissions in Dublin by enabling modernised high-quality commuter rail services between Dublin City Centre and the areas of Drogheda, Maynooth, Dunboyne, Celbridge and Greystones" and aiming to "provide a sustainable, safe, efficient, integrated and accessible public transport service along these corridors", the proposed Project seeks to deliver an electrified network, with increased passenger capacity and enhanced train service between Hazelhatch & Celbridge Station to Heuston Station on the Cork Mainline, and Heuston Station to Glasnevin Junction via the Phoenix Park Tunnel Branch Line (Great Southern and Western Rail Line - GSWR). The works extend across three administrative areas/ local authority areas, including Kildare, South Dublin, and Dublin City. The total length of the proposed development is approximately 20km, including c. 16km for the Cork Mainline and 4km for the Phoenix Park Tunnel Branch Line.



Figure 2. Extent of the DART+ South West Project

The proposed Project will complete four tracking between Park West & Cherry Orchard Station and Heuston Station and will also re-signal and electrify the route. The completion of the four tracking will remove a significant existing constraint on the line (i.e., where four tracks reduce to two), which is currently limiting the number of train services that can operate on this route. DART+ South West will also deliver track improvements along the Phoenix Park Tunnel Branch Line, which will allow a greater number of trains to access the city centre. Upon completion of DART+ South West electrification, new electric DART trains will be used on this railway corridor.

The Project will require modernisation and modifications to the existing railway line. A range of new elements, general linear works and ancillary works (drainage and utility diversions) are required along the entire length of the railway corridor to facilitate the electrification of the line and the upgrade of the existing network. Additionally, specific elements are required at specific locations along the route such as electrical substations to provide power to the network.

The DART+ South West Project requires alterations to the track as follows:

- Widening of the railway corridor and completion of four-tracking between Park West & Cherry Orchard Station and Heuston Station. In this regard, a continuous four track layout along the Cork Mainline from Hazelhatch to Heuston, comprising two Slow electrified lines (northern tracks) and two Fast non-electrified lines will be provided. There are currently no electrified lines in the area;
- Track lowering to achieve the required vertical clearance under bridges to accommodate the Overhead Line Equipment (OHLE);
- New / additional crossovers (when a train switches from one track to another across points) to accommodate the new operational model;
- Sidings modifications at Inchicore Works, to allow continuity of the operations;
- Track geometry improvements (within the current corridor's limits) to remove existing speed restrictions; and
- Suitable and safe access for the rail maintenance teams is required to be provided.

The project includes for a new station, located within CIÉ lands at Heuston Station (at the location of the existing Platform 10 of Heuston Station); The design of the DART+ South West Project makes passive provision for potential future stations at Kilemore and Cabra including track alignments and

other infrastructure which would provide for the delivery of these stations in the future. Iarnród Éireann has committed to developing these stations in the future to provide improved public transport.

The Draft Railway Order application 2023 is a Draft Order, and should the application be approved by An Bord Pleanála, further detailed design will be submitted which will require further consideration and approval. Factors such as the internal uses of the properties, their construction methods, age and historical importance and the effect of construction on these sensitivities has not been assessed as part of the Project thus far. Additional consideration needs to be given to the potential effects on the built environment before a route and construction method can be confirmed.

The statutory consultation period commenced on the 22nd of March 2023, with a 6-week timeframe for submissions, i.e., the closing date for submissions was the 16th of May 2023 at 5.30pm.

3.0 THE KILMAINHAM SQUARE RESIDENTIAL DEVELOPMENT

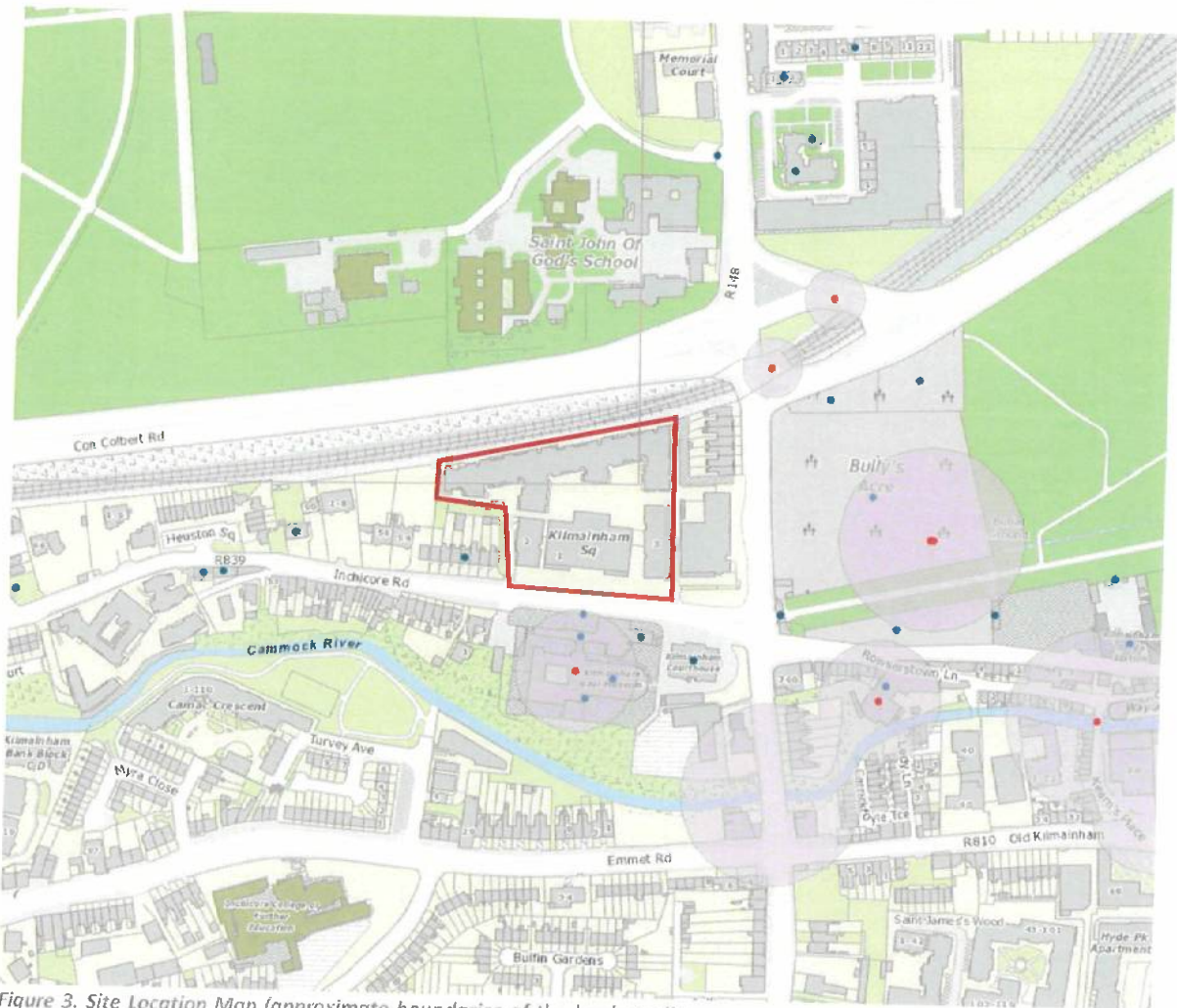


Figure 3. Site Location Map (approximate boundaries of the lands outlined in red with buildings and structures on the National Inventory of Architectural Heritage (NIAH) marked in blue - Map extract from archaeology.ie with Ordnance Survey Base-map)

3.1 Property Location & Description

The Kilmainham Square Residential Development on the 1.6ha site of the former Rowntree Chocolate Factory opposite Kilmainham Gaol, are strategically located on the western side of Dublin City Centre at Inchicore, Kilmainham, Dublin 8, with access to M50 motorway, N4 and N7 national primary roads, situated within 0.7km of the Red Luas line at Suir Road Luas stop which provides a frequent tram service to Dublin City Centre.

Kilmainham Square is a modern mixed-use development of approximately 36,000sqm comprising of 228 no. apartments in 3 blocks including a feature 11 storey main block, 8,000sqm high specification 5 storey office building block, retail units, and a four-star hotel which was developed by Lalco and constructed by John Sisk and Son in 2006.

The Kilmainham Square Development is bounded to the south by Inchicore Road, and to the north by the DART+ South West line. The development is anchored by the Hilton Hotel. Adjoining occupiers within the development include Heineken, Parexel and Klas Telecoms.

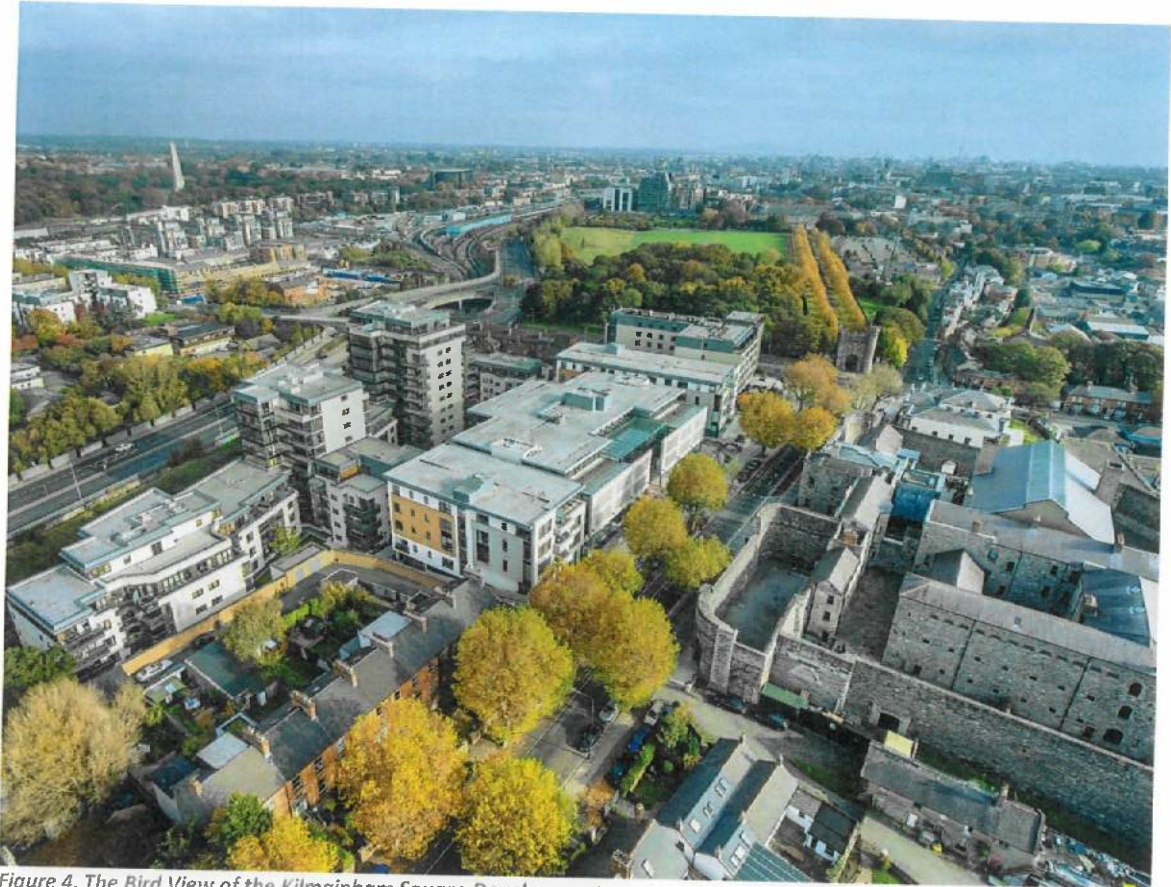


Figure 4. The Bird View of the Kilmainham Square Development



Figure 5. Street View of the Kilmainham Square Development from the Inchicore Road (photo taken on 9/5/2023)



Figure 6. The Kilmainham Square Apartments in relation to DART railway at current situation, whereby 87 no. units are directly facing onto the railway (photo taken on 9/5/2023)

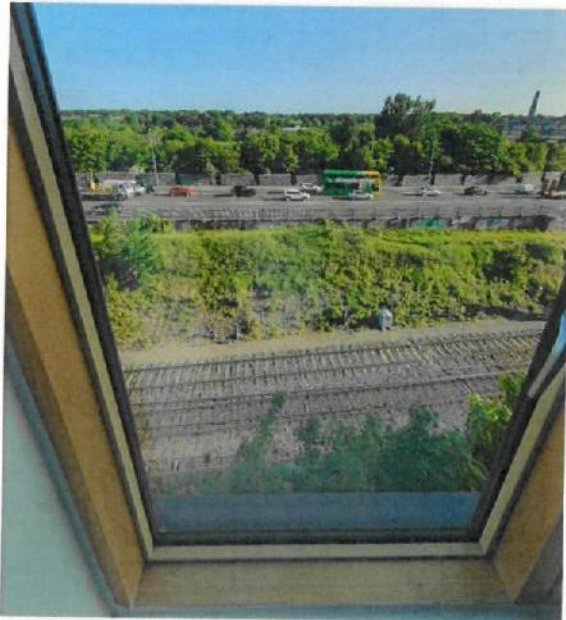


Figure 7. Views to the railway from a bedroom window on the third-floor level at the Kilmainham Square Apartments showcasing close proximity of the apartments to the railway track (photos taken on 15/5/2023)

As shown in the photo above, 87 no. units within the Kilmainham Square Development are directly facing onto the DART+ South West railway line, whereby the balconies of the ground floor apartments at this section are situated 15m from the railway track.

3.2 Planning History Pertaining to the Property

In terms of planning history pertaining to the site, lodged under **DCC Reg. Ref. 0304/03 (ABP Ref. PL29S.202832)** and by Order dated 15th April 2003, **Dublin City Council granted permission** to Charmside Ltd. for a mixed-use development the site at Nos. 34-38 Inchicore Road, Kilmainham, Dublin 8 in five blocks comprising a total of 46,935sqm of accommodation approximately (Including lower basement level of 10,982sqm). The development will consist of the change of use of the site from industrial and ancillary uses to office, residential, 'live-work' units, apart-hotel, retail uses, archive and exhibition use (Including tourist information office) and childcare facility. Noted that the application was accompanied by an Environmental Impact Statement. Subsequently, 3 no. third-party appeals were lodged against the Council's decision, whereby **by the Order dated 15th September 2003, An Bord Pleanála granted permission** for this development with 25 no. conditions attached. This was followed by several planning applications since 2005 to amend the parent permission and facilitate development of the site according to the emerging requirements at the time.

The following provides an overview of these applications:

Reg. Ref. 5827/04 (ABP Ref. PL29S.211248) – By Order dated 15th February 2005, Dublin City Council granted permission to Charmside Ltd. for the replacement of approved Building no. 4 (3-6 storeys containing 59 no. suite apartment hotel with leisure and fitness facility, restaurant and ancillary kitchen area and retail units all over basement car parking) with a new building with south elevation 5 storeys including hotel entrance level, east elevation 3-6 stories including leisure centre and office entrance level, north & west elevations 3-6 storeys above courtyard podium level a 100 no suite hotel to include a restaurant, balcony terrace, 5 no meeting rooms, ancillary areas, roof terraces, a leisure/fitness centre; and a substation & switch room all over basement area providing car parking and cycle parking, along with a delivery area to rear accessed via approved fire tender access off the South Circular Road. Noted that the permission was appealed by a third-party, however the appeal was withdrawn and by Order dated 8th November 2005, An Bord Pleanála granted permission for this development.

Reg. Ref. 1579/05 – By Order dated 18th May 2005, Dublin City Council granted permission to Charmside Ltd. for change of use of 17 no approved student accommodation apartments within core 6 of building 5 to apartment units.

Reg. Ref. 1578/05 – By Order dated 18th May 2005, Dublin City Council granted permission to Charmside Ltd. for revisions to buildings 1 & 3 consisting of an addition of second bedroom to live-work units with reduction of work area and internal alterations to layouts as well as internal alterations to layouts of retail units 1 & 2 (building 1), and to combine retail unit 1 & 2 (building 3) to provide one larger retail unit with revisions to layout at level 1 to provide a store, and internal alterations to layouts of several live-work units and changes to elevations to reflect alterations to internal layouts.

Reg. Ref. 3393/05 – By Order dated 16th September 2005, Dublin City Council granted permission to Charmside Ltd. for amendments to building no. 4 (a 100 no suite hotel including restaurant, kitchen and bar facilities with related storage and ancillary rooms and facilities) to include amendments to internal layout comprising and overall floor area 7,611sqm, 105 no. hotel suites, restaurant and toilets, balcony terrace bar, 7 no. meeting rooms, kitchen and ancillary delivery and storage areas roof

terraces, leisure/fitness centre and ancillary facilities with fully revised East and South Elevations, including increase in parapet heights and amendment to North and West elevations.

Reg. Ref. 3393/05 – By Order dated 16th September 2005, Dublin City Council granted permission to Charmside Ltd. for amendments to building no. 4 (a 100 no suite hotel including restaurant, kitchen and bar facilities with related storage and ancillary rooms and facilities) to include amendments to internal layout comprising and overall floor area 7,611sqm, 105 no. hotel suites, restaurant and toilets, balcony terrace bar, 7 no. meeting rooms, kitchen and ancillary delivery and storage areas roof terraces, leisure/fitness centre and ancillary facilities with fully revised East and South Elevations, including increase in parapet heights and amendment to North and West elevations.

Reg. Ref. 5014/05 – By Order dated 11th October 2005, Dublin City Council declared application lodged on the site as invalid due to non-compliance of the site notice with Articles 18, 19 (1) (A) or 22, of the Planning and Development Regulations 2001.

Reg. Ref. 5883/05 – By Order dated 29th March 2006, Dublin City Council granted permission to Charmside Ltd. for alterations and additions to the basement car parking area, addition of a floor at level 3 to core 3 of building 5, addition of two floors at level 6 & 7 to core 2 of building 5 and addition of two floors at level 8 & 9 to core 4 of building 5.

Reg. Ref. 5209/05 – By Order dated 18th April 2006, Dublin City Council granted permission to Charmside Ltd. for amendments to Building no. 4 (a 105-no. suite hotel) to consist of additional 15 no. hotel suites and linen store on new 5th floor penthouse level to create revised six storey building with terraces at 5th floor level and to include subsequent amendments to all elevations with an amended overall floor area (8,350sqm).

Reg. Ref. 2865/06 – By Order dated 8th August 2006, Dublin City Council granted permission to Charmside Ltd. for the relocation of previously approved ESB substation & switch room located in a single storey building at level -1, building 5, to a two storey building at level -1, building 5 with entrance to the switch room (28sqm) at level -1 and new entrance to ESB substation (28sqm) at ground level from the laneway to the rear of Spencer Terrace and creation of 66.5sqm of storage area beside the switch room at level -1.

Reg. Ref. 4341/06 – By Order dated 31st October 2006, Dublin City Council granted permission to Charmside Ltd. for signage around the Hotel.

Reg. Ref. 4385/06 – By Order dated 2nd November 2006, Dublin City Council granted permission to Charmside Ltd. for revision to building 1 consisting of the subdivision of live-work unit 1 previously approved - to provide 1 no. 1 bed apartment 54.55sqm with new balcony and separate office/meeting room 45sqm all at level 0, building no. 1 and changes to elevation to reflect addition of new balcony.

Reg. Ref. 4135/07 – By Order dated 11th October 2007, Dublin City Council granted permission to Charmside Ltd. for alteration to previously approved signage on the Hotel.

Reg. Ref. 4367/07 – By Order dated 22nd October 2007, Dublin City Council granted permission to Charmside Ltd. for change of use of previously approved ground floor retail unit (202.43sqm) and level -1 retail storage area (135sqm) for building no. 3 from shop to restaurant.

Reg. Ref. 4366/07 – By Order dated 22nd October 2007, Dublin City Council granted permission to Charmside Ltd. for alterations to Building 1 to include combinations of 2 no. previously approved ground floor retail units into 1 no. larger unit, change use and modifications to layouts of previously approved plant area at level -1 to provide for reduced plant and new retail storage area (107.07sqm) connected to ground floor retail unit by a new internal stairs, general storage rooms 52.82sqm and associated lobbies/circulations areas 82.35sqm.

Reg. Ref. 6813/07 – By Order dated 4th April 2008, Dublin City Council granted permission to Charmside Ltd. for alteration to building no. 1 to combine 2 no. previously approved ground floor retail units into 1 no. larger retail unit.

Reg. Ref. 6799/07 – By Order dated 22nd February 2008, Dublin City Council refused permission to Charmside Ltd. for alterations to Building no. 1 to combine 2 no. previously approved ground floor retail units into 1 no. larger retail unit and change of use of the retail unit from shop to restaurant.

Reg. Ref. 1308/08 – By Order dated 18th July 2008, Dublin City Council refused permission to Charmside Ltd. for provision of purpose-built storage areas within the lower basement level (a total of 55.5sqm).

The above-mentioned planning history on the site showcases the dynamic of the site since 2005 led to a successful mixed-use development bringing residential, offices and retail elements to this previously industrial site. Followed by the implementation the parent permission as well as the amendment permission, this established development is currently occupied.

In terms of recent planning history on the wider context of the site, it is understood that there is a permission for a mixed-use scheme on approximately 4.9ha lands at the Emmet Road, Inchicore with the Council tendering for provision of post-planning services in Q2 2023.

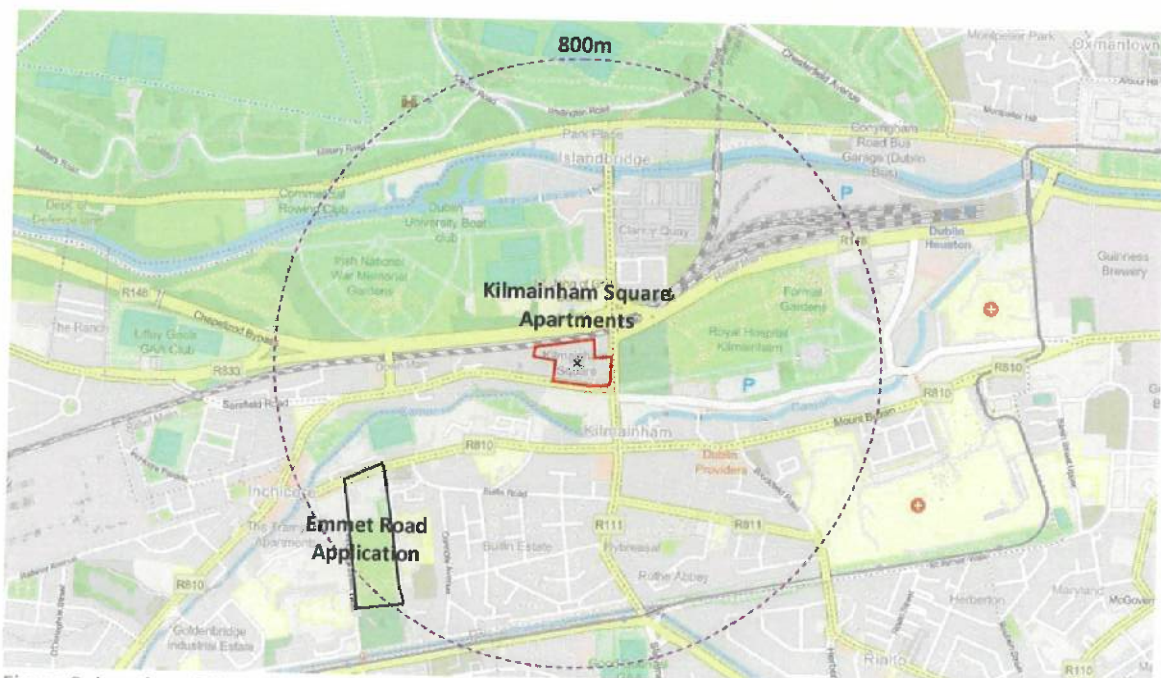


Figure 8. Location of Emmet Road Potential Development in relation to the Kilmainham Square Development (source: ArcGIS online utilisation in DOWNEY)

This is to provide 578 no. residential units, library/community hub, childcare facility, supermarket, 5 no. retail units, and 2 no. café/ restaurant units with open space and associated site works. This potential development site is located within 800m buffer zone off the Kilmainham Square Apartments, as illustrated below.

This is suggested to have implications for the Environmental Impact Assessment accompanying the application on the DART+ South West, whereby a cumulative environmental impact needs to be examined.

3.3 Planning Policy Context

Under Dublin City Development Plan 2022-2028, the premises at Nos. 34-38 Inchicore Road are partially zoned "Z1 – Sustainable Residential Neighbourhood" and partially zoned "Z10 – Inner Suburban and Inner City Sustainable Mixed Use" as shown below.

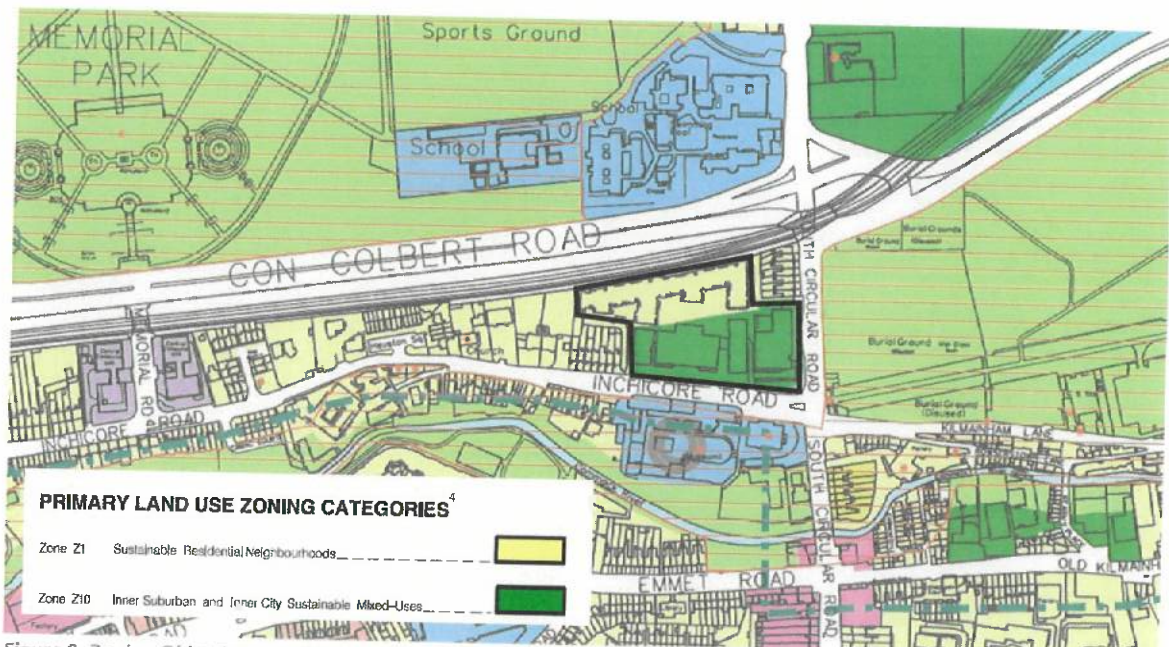


Figure 9. Zoning Objective pertaining to the subject property extracted from Dublin City Development Plan 2022-2028 (the approximate boundary of the subject site is outlined in black)

In relation to the Draft Railway Order's consistency with planning policy and planning guidelines, a non-exhaustive list of planning policy and legislation at National, Regional, and Local levels, is included in Appendix 1 of this submission. The Board are invited to refer to this for further details. We would respectfully request that An Bord Pleanála ensure that TII have fully assessed the Project with regard to existing planning policy, as well as adherence to the relevant local policies and guidelines pertaining to each individual property.

DOWNEY note that this proposed Draft Railway Order is a strategic long-term development and An Bord Pleanála may consider Draft Development Plans in assessing the Project. It is also crucial to note that on foot of a granted Order and during the detailed design stage, a revision to planning policy is expected, whereby adopted plans and legislation may have to be adhered to within this stage. This may require an amendment to the Draft Railway Order and further assessment including public consultation.

3.4 Potential Development of the Property

Our clients reserve the right to develop the subject property in the future, this includes property above and below ground, subject to normal planning criteria.

4.0 ENGINEERING CONSIDERATIONS

This Section covers the technical information from an engineering perspective relating to the property.

4.1 Railway Works Plan

The DART+ South West railway bounds northern boundary of the Kilmainham Square Apartments, passes approximately 7m from the front of the apartment blocks. The works layout plan in relation to the site has been specified on the drawing Site Layout Plan No. 13, Book 1 of the Order drawings.

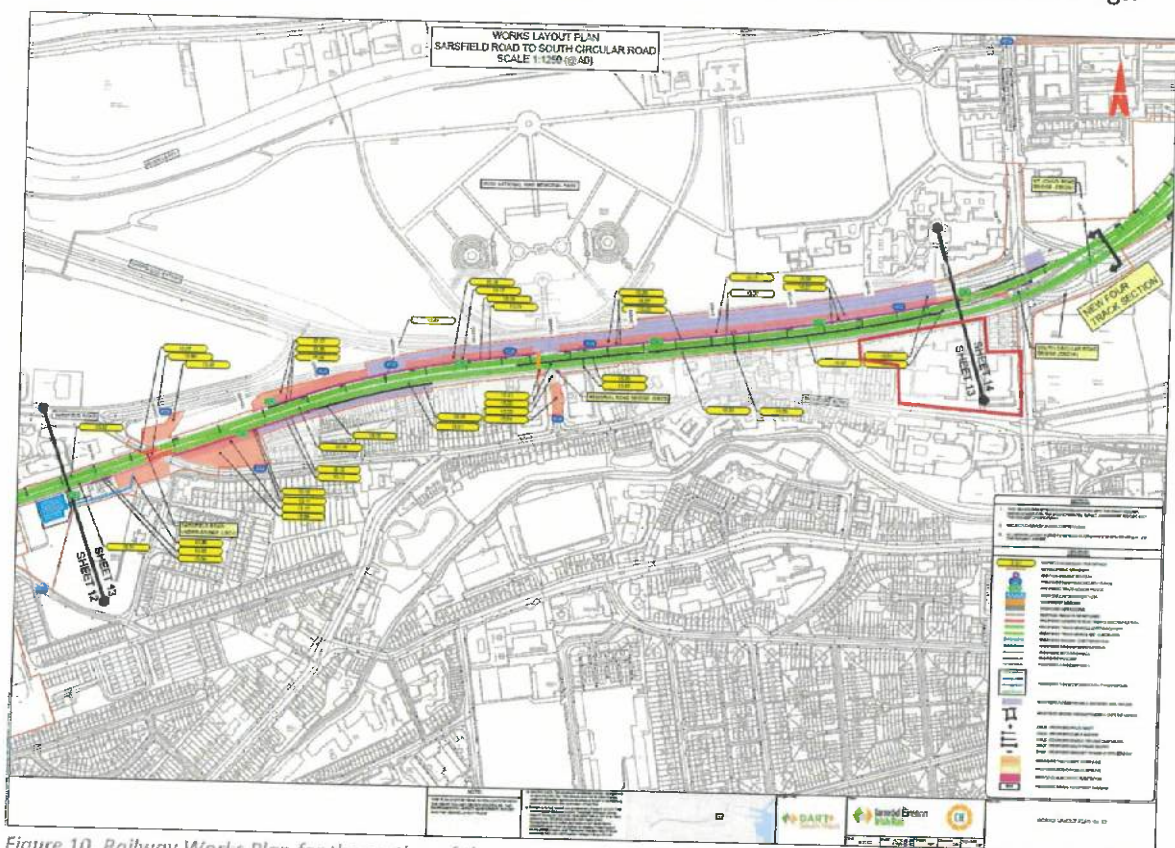


Figure 10. Railway Works Plan for the section of the railway adjacent to the subject property (Site Layout Plan No. 13)

As marked up on the drawing, work plan at this section of the road involves proposed track works for electrified and not electrified extension of the railway (green continuous and dashed line respectively), as well as proposed retaining wall to the northern boundary of the railway casement.

There is also "reconstruction of existing roads over the area of the new 'cut and cover' buried portal structure located at South Circular road Bridge (OBC1A). This will include median and junction approach islands. Works will include the reinstatement of the road drainage system and resurfacing of the junction with associated lane marking. The works will entail extensive temporary traffic management measures, including lane diversions and temporary lane closures and temporary and permanent utility diversions" (work detail no. 13.31 on the drawing).

Outlined in Chapter of the EIAR accompanying the Draft Order, "The construction of (OBC1A) will require a minimum of 2 no. main phases of traffic management and associated construction works:

- Construct new western section of the structure (offline, but necessitates access using the first lane (Bus Lane) of the Con Colbert Road;
- Divert all utilities and traffic to the new western section;
- Construct remaining part of the box structure to the east of the new section; and
- Either leave utilities in place on the western section or divert back to road corridor.

H4a Containment Parapets will be installed to a height of approximately 2.4m above the footpath to the eastern end (exit) of the structure to match the existing height of parapet wall."



Figure 11. South Circular Road Junction Works (extracted from Chapter 5 of the EIAR, page. 109)

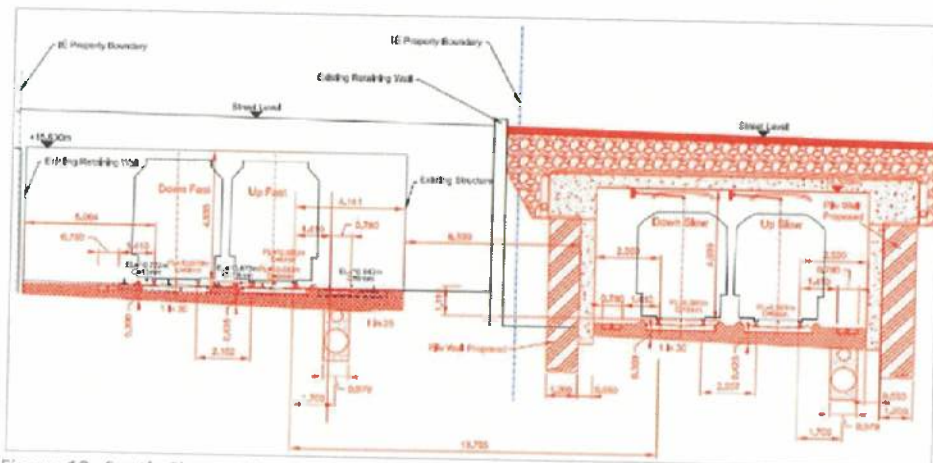


Figure 12. South Circular Road Bridge (OBC1) and New Cut and Cover Structure (OBC1A) – Cross section at CH 9+401, View Facing West (extracted from Chapter 5 of the EIAR, page. 109)

Moreover, there is "installation of a new 'cut-and-cover' buried portal structure (OBC1A) to accommodate two new railway tracks and electrification of same. This will include piling of the portal abutments under the road section. Construction of the roof slab elements, waterproofing and backfilling over the structure. All parapets and corridor boundary walls affected will be reconstructed over the new structure. A pedestrian access point (for maintenance) will be created from a new maintenance parking platform on the structure" (work detail no. 13.32 on the drawing).

In terms of the new retaining wall at this section of the railway, the existing cut slope will be widened toward Con Colbert Road and the top of the wall will be c. 4m from the road once complete. To build the retaining wall, in this area, requires the existing road/rail corridor boundary wall to be demolished. The following provides further details regarding the new retaining wall.

Chainage	Location	Proposed Retaining Wall	Height	New/Replaced
10+240 – 9+510	Con Colbert Road to South Circular Road Bridge	Secant Wall + Secant wall anchors	4.6m – 10.2m high	New
9+400	South Circular Road	Secant Wall + Secant wall anchors	8.2m – 10.2m high	New

Figure 13. New / Replacement Retaining Walls (Northern Perimeter) (extracted from Chapter 5 of EIAR, page 113)

All works will be facilitated via a temporary compound located to the northern boundary of the railway casement that is highlighted in red on the drawing.

4.2 Railway Property Plans

As shown below on the drawing Property Plan No. 13, Book 2 of the Order drawings, the Kilmainham Square Apartments will be exposed to the proposed temporary land acquisition highlighted in blue, along with the substratum land acquisition hashed in red, all stretching along the northern boundary of the railway casement.

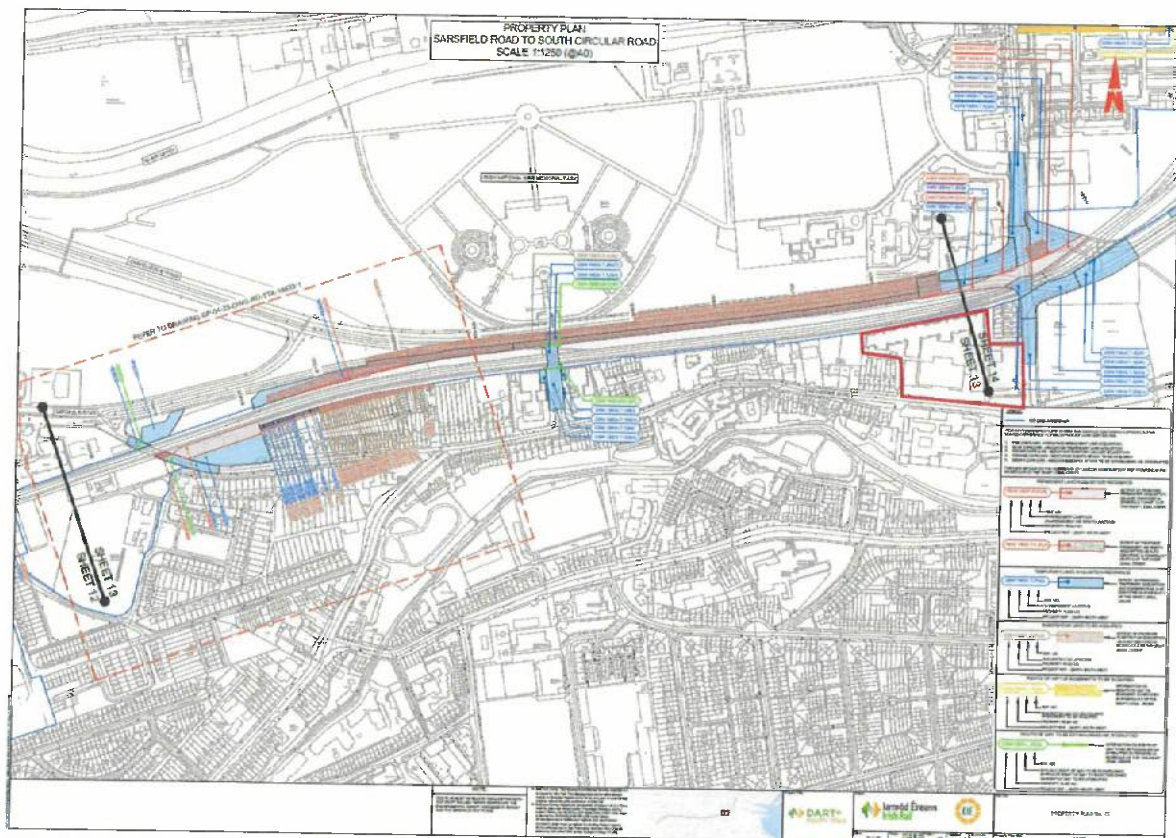


Figure 14. Property Plan for the section of the railway adjacent to the subject property (Property Plan No. 13)

4.3 Railway Structures Plans (Linear Works)

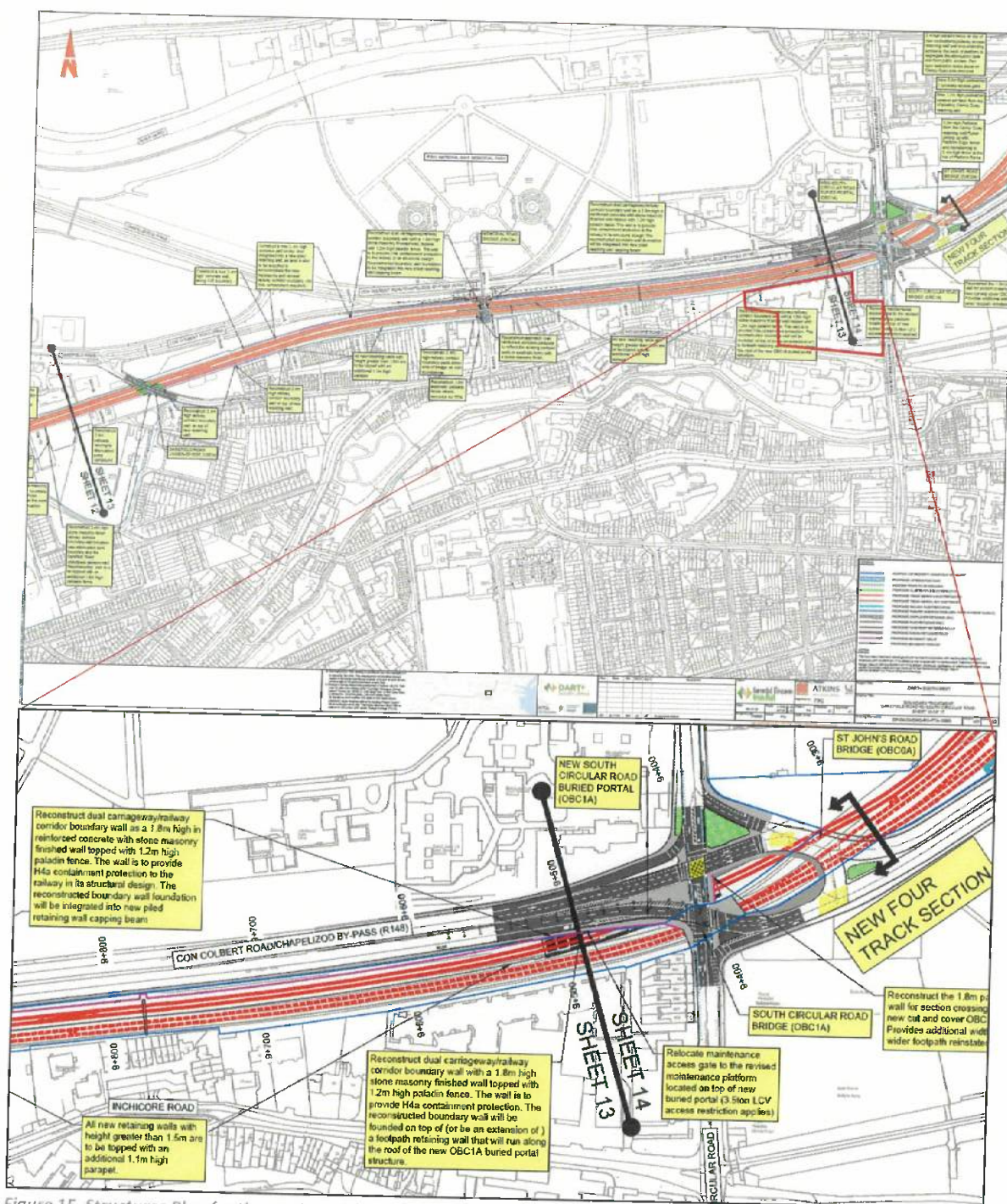


Figure 15. Structures Plan for the section of the railway adjacent to the subject property (drawing DP-04-23-DWG-RO-TTA-18898)

As shown on the above drawing Structures Plan – Boundary Treatment (Sheet 13 of 17), Book 3 of the Order drawings, to facilitate the extension and upgrade of DART+ South West in relation to the subject site at Kilmainham Square Apartments, it involves re-construction of: (1) dual carriageway/railway corridor boundary wall with a 1.8m high stone masonry finished wall topped with 1.2m high paladin fence. The wall is to provide H4a containment protection. The reconstructed boundary wall will be

founded on top of (or be an extension of) a footpath retaining wall that will run along the roof of the new OBC1A buried portal structure; (2) dual carriageway/railway corridor boundary wall as a 1.8m high in reinforced concrete with stone masonry finished wall topped with 1.2m high paladin fence. The wall is to provide H4a containment protection to the railway in its structural design. The reconstructed boundary wall foundation will be integrated into new piled retaining wall capping beam; and (3) relocation of the maintenance access gate to the revised maintenance platform located on top of new buried portal.

4.4 Construction Programme

Outlined in the Chapter 5 of the EIAR accompanying the Draft Order, the overall construction programme is expected to take 50 months and the current expectation is that construction will commence in mid-2025, subject to the necessary approvals. The indicative construction programme is provided below.

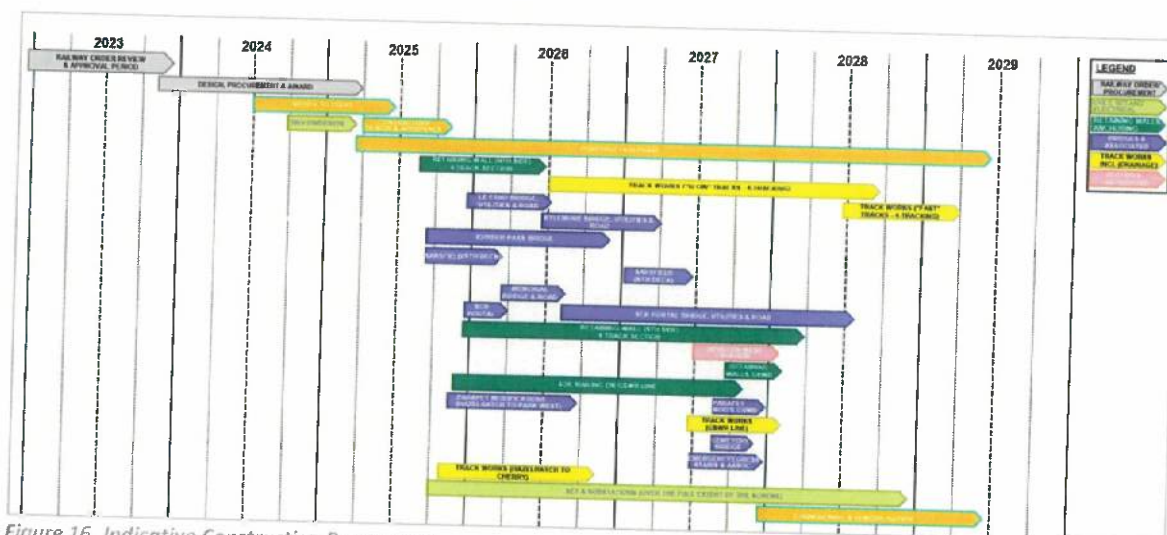


Figure 16. Indicative Construction Programme

The programme is based on a 10 hour working days, Monday to Friday. Specific construction activities will require variations from that, these include:

- Preparatory works that will require night-time working to create working platforms and safe zones of work;
- Piling: 8am to 6pm;
- Turnouts installation and removal: overnight hours;
- Heuston platforms 1 to 6: 9 days shutdown;
- Heuston platforms 7 and 8: 4 days shutdown;
- Wall between existing and new lines between South Circular Road junction and Memorial Road, undertaken over a series of night-time closures;
- Hazelhatch & Celbridge Station: 54/72-hour closure; and
- Tie in works: will require overnight work or blockades.

Outlined in the Draft Order, 12 stages have been identified for the construction phase to represent changes to track and signalling arrangements proposed to bring the construction to a final conclusion. The stages will be evolved during the development of the construction stage of the development.

4.5 Contractual Arrangements

CIÉ intend to procure the post-planning and construction of the proposed Project through contracting arrangements. The contractor(s) appointed will take ownership of the Construction Environmental Management Plan (CEMP). Prior to any demolition, excavation or construction, a Construction Environmental Management Plan (CEMP) will be updated by the successful contractor. The CEMP will set out the Contractor's overall management and administration of the construction project.

The contractor(s) is required to undertake all activities in accordance with the relevant environmental requirements including consent documentation and other regulatory and contractual requirements.

5.0 POTENTIAL IMPACTS ON THE PROPERTY

DOWNEY and Malone O'Regan Engineering Consultant have carried out a detailed examination of the property subject to this submission. Having regard to the status and current use of the property and identified constraints, the following raises concern regarding potential impacts of the DART+ South West railway upgrade and extension on the property. This has been elaborated to include potential impacts during the construction and operation phases of developing DART+, and any impediments and/or implications for future development of the property.

It is noted that the EIAR enclosed with the Draft Order carried out the assessments by dividing the spatial scope of the Project into four main geographic areas, comprising: (1) Zone A: Hazelhatch & Celbridge Station to Park West & Cherry Orchard Station, (2) Zone B: Park West & Cherry Orchard Station to Heuston Station incorporating Inchicore Works, (3) Zone C: Heuston Yard & Station (incorporating New Heuston West Station), and (4) Zone D: Liffey Bridge to Glasnevin Junction (Phoenix Park Tunnel Branch Line). **The subject property falls within Zone B of this assessment.**

5.1 Noise

5.1.1 Noise Monitoring

Outlined in Chapter 14 of the EIAR enclosed with the Draft Order, the noise environment in Zone B comprises "existing rail noise from commuter, intercity and freight trains, road traffic noise from local and regional roads as noise from the M50 motorway for receptors at the western end. There is also industrial and commercial noise from several industrial parks in the area. Moving further east towards Inchicore, the noise environment comprises rail noise, road traffic noise and industrial and commercial noise including activity at Inchicore works. Travelling east to Kilmainham, the R148 dual carriageway (Chapelizod Bypass / Con Colbert Road) runs parallel to railway tracks. The R148 intersects with the R111 (South Circular Road). Road traffic is the dominant noise source for nearby noise sensitive locations."

Accordingly, 2 no. noise monitoring locations were selected in relation to Kilmainham Square to include NML 8 (712582, 733878) and NML 9 (712582, 733879) with surveys carried out over 9-11th of January 2022. The first receptor was located on third floor balcony of apartment block with view of

train tracks at Kilmainham square off Con Colbert Road. Constant road noise from R148 – Chapelizod Bypass. Horizontal setback approximately 40m from rail tracks. Whereas the second receptor was located on ninth floor balcony of apartment block with view of train tracks at Kilmainham square off Con Colbert Road. Constant road noise from R148 – Chapelizod Bypass Horizontal setback approximately 40m from rail tracks. The results are as follows:

- NML 8: a noise level of $64L_{Aeq, 16hr}$ during daytime and a noise level of $59.1L_{Aeq, 8hr}$ during night-time
- NML 9: a noise level of $69.8L_{Aeq, 16hr}$ during daytime and a noise level of $65.4L_{Aeq, 8hr}$ during night-time

Regarding mitigation and as outlined in Chapter 14 of the EIAR, the installation of noise barriers is not effective due to the height of the buildings. Resilient rails have been considered for this location, however the mitigation provided by is limited. Therefore, the significance of effect at location R17, Kilmainham Square, was assessed to be long term negative moderate effect.

The measurements carried out by Malone O'Regan Engineering Consultant, accounting for façade correction, are up to 9dB lower than the average value presented in the acoustic report accompanying the proposed Project. Moreover, the noise data has been represented in $L_{Aeq, 16hr}$, a parameter that is not representative of the road noise. WHO guidelines and the European Noise Directive (END) recommend the parameter L_{den} to represent the noise from railways. WHO guidelines states in Section 3.2, "For average noise exposure, the GDG (Guidelines Development Group) strongly recommends reducing noise levels produced by railway traffic below 54dB L_{den} , as railway noise above this level is associated with adverse health effects." The parameter L_{den} is therefore, in the absence of national criteria, arguable a more appropriate criteria with WHO guideline values, and enabling integration of this assessment to the nationally required strategic noise mapping for major rail, road, airports and industry, so as to represent the noise levels from the proposed Project. For further information in this regard, we respectfully invite the Board to refer to the Acoustic Assessment report prepared by Malone O'Regan Engineering Consultant as part of this submission.

5.1.2 Operational Noise

Outlined in Chapter 14 of the EIAR accompanying the proposed Project, there is no statutory Irish guidance specifying airborne noise levels from rail operations. In absence of specific noise limits, reference has been made to guidance documents on environmental noise and precedence from other urban rail projects. The proposed operational rail noise criteria are as below.

Operational Rail Noise Criteria	
Daytime (07:00 – 23:00)	Night-time (07:00 – 23:00)
55 dB $L_{Aeq, 16hr}$	45 dB $L_{Aeq, 8hr}$

Figure 17. Operational Rail Noise Criteria extracted from Chapter 14 of the EIAR, page 12.

Stated in Chapter 14 of the EIAR, as the proposed Project is an existing track already exposed to significant levels of rail noise, it may not be possible to achieve the operational noise criteria in Table 14.7 in many areas. In these instances, mitigation measures will be explored to reduce the noise impact where practicable. However, it may not always be sustainable to provide adequate mitigation in order to achieve the noise criteria. Therefore, a structured approach will be taken in order to ameliorate as far as practicable rail traffic noise through the consideration of measures such as noise

barriers or boundary treatments. The report goes on to add, the mitigation measures are deemed necessary when the following three conditions are satisfied at designated sensitive receptors:

- a) the rail noise level the proposed scheme together with other rail traffic in the vicinity is greater than the operational rail noise criteria;
- b) the relevant noise level is at least 1dB more than the expected rail noise level without the proposed scheme in place; and
- c) the contribution to the increase in the relevant noise level from the proposed scheme is at least 1dB.

As per the assessment carried out by Malone O'Regan Engineering Consultant, different scenarios were modelled to examine the operational noise, whereby an assumption is made that only rail noise is modelled and the predicted result does not contain road noise or other sources. For further information in this regard, please see the Acoustic Assessment report prepared by Malone O'Regan Engineering Consultant as part of this submission.

5.2 Vibration

As stated in Chapter 14 of the EIAR enclosed with the Draft Order, "three vibration monitoring stations were monitored at Kilmainham Square on different floors" vertically aligned over the same location; these are marked as VML 6, VML 7, and VML 8. The baseline survey results are summarised below:

Monitoring Location	Description	PPV (mm/s) With Trains	PPV (mm/s) No Trains	VDV (m/s ^{1.75}) With Trains	VDV (m/s ^{1.75}) No Trains
VML 4	Adamstown Park (20 m from tracks – footpath)	0.049	0.010	0.018	0.032
VML 5	Adamstown Park (40 m from tracks – footpath)	0.030	0.015	0.011	0.015
VML 6	Kilmainham Square (ground floor)	0.130	0.010	0.092	0.018
VML 7	Kilmainham Square (second floor)	0.060	0.010	0.039	0.019
VML 8	Kilmainham Square (Sixth floor)	0.040	0.010	0.028	0.009

Figure 18. Baseline Vibration Survey Results (extracted from Chapter 14 of the EIAR, page 29)

The baseline surveys of noise and vibration for Kilmainham Square indicates a "not significant" impact on the 9th floor and a "moderate" impact on the 3rd floor for the apartments.

5.3 Traffic and Transportation

Outlined in Chapter 6 of the EIAR, there is a comprehensive road network in the study area and in the immediate vicinity of the railway line, particularly within the city centre where there is an extremely dense road network; Inchicore Road falls within the Zone B, whereby no works are proposed along this road, so no traffic disruptions are expected along this road, and increase from construction vehicles are summarised as the table below:

B	Jamestown Road – Existing Iamróid Éireann Inchicore Yard Track Works Entrance. Reachable via Kylemore way (either directly from the Naas Road or via Kylemore Road, the latter also being from the Naas Road)	Inchicore (Main) Compound and Track Access Demolitions to buildings, track work, retaining and boundary walls and Material sorting and stick piling and attenuation Tank OHLE & SET.	1712 (850@ Peak)	<5%	22-70
		Kylemore Substation Compound Substation Construction (Inc. Electro-mechanical installations)	120		6-10
B	It was clear during public consultation that construction traffic should as much as possible be kept clear from Tyrconnell Park and Inchicore Terrace; both of which are narrow and service residential areas that have limited on plot parking.	Inchicore (Central) Compound and Track Access Demolitions to buildings, track work, retaining and boundary walls and Khyber Pass (South) Construction OHLE & SET.	100	<5%	6-12
	All haul routes between Inchicore and Sarsfield Road Compounds and accesses to the compounds must be through the Inchicore Yard Property. With Tyrconnell Park and Inchicore Terrace used only for emergency egress procedures.	Sarsfield Road Bridge (South West) Compound and Track Access Cranning site for lifting and pouring Southern deck of UBC4, as well as track work, retaining and boundary walls and attenuation tank. OHLE & SET	1131 (750@ Peak)		10-70

Figure 19. ADT Increase from Construction Vehicles and Significance of Effect on Public Roads (extracted from Chapter 6 EIAR, page 47)

Link Arm ID	Road Name	Existing			Memorial Road Bridge Closure				
		Peak Hour	AADT	HGV %	Peak Hour	Redist.	AADT	HGV %	AADT % Diff
15	Sarsfield Road (Bridge)	946	5,765	10.6	0	0	5,765	10.6	0.0
16	R839 (N)	2,330	14,205	6.6	-750	-4,575	9,630	6.6	-32.2
17	R839 (S)	2,344	14,290	8.8	0	0	14,290	8.8	0.0
18	R810 (W)	2,307	14,065	8.9	134	814	14,879	7.9	5.8
19	R111 (N)	2,473	15,080	3.6	927	5,654	20,734	4.2	37.5
20	Ballyfermot (EE)	2,341	14,277	10.4	0	0	14,277	10.4	0.0
21	Con Colbert Rd	1,477	9,005	10.3	0	0	9,005	10.3	0.0
22	Inchicore Road (W)	1,425	8,688	6.2	-750	-4,575	4,113	6.2	-52.7
23	Inchicore Road (E)	610	3,716	4.0	0	0	3,716	4.0	0.0

Figure 20. Increase in AADT on Diversion Routes Associated with Memorial Road Closure

In addition, the traffic diversions to facilitate construction of the Project are not within close proximity to the Kilmainham Square Apartments and therefore no significant traffic impact is expected to affect the property and its day-to-day functions.

5.4 Biodiversity

As outlined in Chapter 8 of the EIAR accompanying the proposed Project, the proposed measures for the west of South Circular Bridge (OBC1A) outlined as "Cut and Cover Tunnel", includes "green roof on top of the cut and cover tunnel to consist of vegetated fabric mats with broad mix of sedum and native wildflower species."

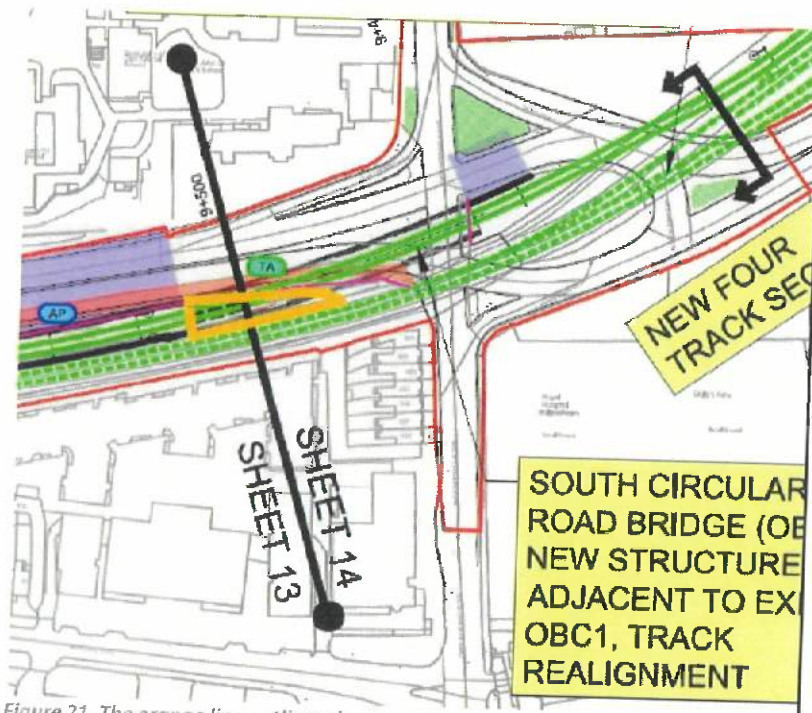


Figure 21. The orange line outlines the area of proposed measures to be incorporated for biodiversity protection.

The orange outlined as shown on the snippet above, appears as an error which needs to be aligned with the magenta line. Also, referring to Chapter 4 of the EIAR where the proposed Project has been described in detail, the proposed works for this section of the railway includes widening of the rail corridor for 4 tracking/new portal structures, as well as new retaining walls. Therefore, it is not clear where the cut and cover tunnel is taking place at this section of the railway. Noted as shown on Figure 6 of this submission, there is a line of mature trees to the north boundary of the railway casement where the extension of the railway is proposed.

5.5 Electromagnetic Fields

As outlined in Chapter 18 of the EIAR accompanying the proposed Project, the construction phase also encompasses introduction of new utility infrastructure, such as pumping stations which open up discussions around the need to deal with electromagnetic currents and the potential impacts. Table 22.10 in Chapter 22 of the EIAR illustrates a baseline assessment whereby 9 no. receptors within 100m of the railway centerline have been identified within Zone B, where the Kilmainham Square Development falls within.

Despite acknowledging the residential developments along the railway line at this Zone, none of the receptors were placed on a residential development. Given the close proximity of the Kilmainham

Square Development to the railway line, it is expected this residential development to be incorporated within the stage 3 assessments.

Furthermore, as a concern raised by the residents of the Kilmainham Square Development, the existing infrastructure already has an adverse impact on the internet connection within this residential development. Therefore, it is expected for the stage 3 assessment to further investigate the potential impacts of these fields on the internet connection within the Kilmainham Square Development.

6.0 CONCLUSION

This submission has been prepared by DOWNEY, Chartered Town Planners, 29 Merrion Square, D02 RW64, in conjunction with Malone O'Regan Engineering Consultant, Richview Office Park, Clonskeagh, Co. Dublin, on behalf of our clients, The Old Chocolate Factory 227 Residential Apartments and 4 Commercial Units at Inchicore Road, Kilmainham, Dublin 8, which relates to the DART+ South West railway extension and upgrade, and its potential impacts on this apartment block and its residents.

With reference to the Draft Railway Order (DART+ South West Electrified Heavy Railway Order 2023), our clients welcome this strategic project and recognises the significance of its delivery to provide for a sustainable, safe, efficient, integrated, and accessible public transport service between Dublin City Centre and the areas of Drogheda, Maynooth, Dunboyne, Celbridge and Greystones.

With respect to this property, our clients are seeking:

- 1) To ensure no disruption to public access of the building and its day-to-day uses and functions, in particular regarding traffic diversion when upgrading the junction.
- 2) To ensure no damage to the building and the boundary wall facing the railway, pre-construction and post-construction surveys, trials and monitoring is required. This is mainly concerned with the fact that the ground movement impact, as well as ground borne noise and vibration impact on the building during construction and operation, has not been incorporated within the Draft Railway Order.
- 3) To ensure all parts of the Kilmainham Square Development identified in this submission are subject to Stage 3 assessment, and subsequent stages of assessment in liaison with the property management in place.
- 4) To include mitigation measures to maintain noise, vibration and dust to the acceptable levels during construction, considering the additional lorry movements during construction.
- 5) To include mitigation measures to maintain noise, vibration and dust to the acceptable levels post-construction, whereby a more frequent railway service with the new longer trains is suggested to give rise to an elevated level of noise, vibration and dust.
- 6) To ensure no disruption and/or adverse impacts on internet connection as well as fibre optic cables running along the line during construction and post-construction.
- 7) To include recent and/or live planning applications/permissions within effective proximity to the site in the Construction Environmental Management Plan (CEMP) to allow for assessment of cumulative impact on the property (the 578-unit mixed-use development at Emmet Road as an instance).

- 8) The Kilmainham Square Development reserves the right to development of the subject property in the future, including property above and below ground, subject to normal planning criteria.
 - 9) The Kilmainham Square Development request that noise and vibration mitigation measures to be included in relation to this section of the railway, including sound barrier, sliding slabs, partial roofing of the railway, compensation measures to upgrade apartments openings directly facing onto the railway, etc.
 - 10) To ensure inclusion of mitigation measures in relation to biodiversity and air quality along this section of the railway due to close proximity to the Kilmainham Square Development.
 - 11) Precedents to be applied to the risk assessments to ensure utilising best industry practice within the implementation of the proposed Project.
 - 12) To ensure liaison of CIÉ and the future contractor with the residents of the Kilmainham Square Apartments to ensure consideration of all concerns and issues and to facilitate successful delivery of the railway.
 - 13) To have an Oral Hearing on the Kilmainham Square Development and potential impacts of the proposed Project on this predominately residential development.
- In light of the above, DOWNEY respectfully request that An Bord Pleanála take into consideration the issues raised when assessing the Draft Railway Order (DART+ South West Electrified Heavy Railway Order 2023).

APPENDIX 1: LIST OF PLANNING LEGISLATION & POLICY DOCUMENTS

This appendix provides a non-exhaustive list of planning policy, legislation, and guidelines. We would respectfully request that An Bord Pleanála ensure that CIÉ have fully assessed the Project with regard to existing planning policy, as well as adherence to the relevant local policies and guidelines pertaining to the property.

Legislative Context

- **Planning and Development Act 2000 (as amended)**

The proposed Project comes within the definition of Strategic Infrastructure Development (SID) under Section 2 of the Planning and Development Act 2000 (as amended). 'Strategic Infrastructure Development' means *"any proposed railway works referred to in section 37(3) of the Transport (Railway Infrastructure) Act 2001 (as amended by the Planning and Development (Strategic Infrastructure) Act 2006."*

- **Planning and Development Regulations 2001 (S.I. No. 600 of 2001)**

The principal regulations underpinning the Planning and Development Acts are the Planning and Development Regulations 2001 (S.I. No. 600 of 2001). A number of Regulations amending the 2001 Regulations have been made, which, taken together, are collectively cited as the Planning and Development Regulations 2001 to 2022.

An unofficial consolidation of the Planning and Development Regulations 2001-2022 has been prepared for ease of reference by users and has no legal status. This can be accessed here: [Planning and Development Regulations 2001-2022](#).

- **Directive 2014/52/EU**

Directive 2011/92/EU, passed on 13th December 2011, pertains to the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU (hereafter referred to as the 'EIA Directive'), passed on 16th April 2014, which sets the requirements for EIA in European law. It requires EIA to be carried out for certain public and private projects listed in Annexes I and II of the EIA Directive.

The requirements of Directive 2014/52/EU were transposed into Irish law with the adoption of the S.I. No. 743/2021 - European Union (Railway Orders) (Environmental Impact Assessment) (Amendment) Regulations 2021 (hereafter referred to as the EIA Regulations), which amend the Transport (Railway Infrastructure) Act 2001 to bring it in line with Directive 2014/52/EU.

- **Transport (Railway Infrastructure) Act 2001 (as amended)**

The 2001 Act provides for a Draft Railway Order application to be made by the Applicant to An Bord Pleanála.

"37(1) An application may be made to An Bord Pleanála ('the Board') for a railway order by the Dublin Transport Authority ('DTA'), the Agency, CIÉ or another person. Where any part of the proposed railway works in the application is within the functional area of the DTA the

applicant (not being the DTA) must have obtained the prior written consent of the DTA for the application

(2) An application under subsection (1) shall specify whether the application is in respect of a light railway, metro or otherwise.

(3) An application under subsection (1) shall be made in writing in such form as the Minister may specify and shall be accompanied by—

(a) a draft of the proposed order,

(b) a plan of the proposed railway works, MetroLink Planning Report

(c) in the case of an application by the Agency or a person with the consent of the Agency, a plan of any proposed commercial development of land adjacent to the proposed railway works,

(d) a book of reference to a plan required under this subsection (indicating the identity of the owners and of the occupiers of the lands described in the plan), and

(e) a statement of the likely effects on the environment (referred to subsequently in this Part as an 'environmental impact assessment report') of the proposed railway works, and a draft plan and book of reference shall be in such form as the Minister may specify or in a form to the like effect."

Section 37 (4) of the 2001 Act sets out that "The construction of railway works, the subject of an application for a railway order under this Part, shall not be undertaken unless the Board has granted an order under Section 43".

A number of other relevant documents have also been prepared as part of the Draft Railway Order application, including the following, provided as stand-alone documents.

- Wider Effects Report; and
- Natura Impact Statement
- National Cultural Institutions Act 1997

- **The National Cultural Institutions Act**

The National Cultural Institutions Act sets the framework for which National Cultural Institutions must operate. The act provides for the establishment of Boards for the national institutions.

- **National Cultural Institutions (National Concert Hall) (Amendment) Bill 2022**

Bill entitled an Act to provide for the transfer of certain functions, staff, property, rights and liabilities of RTÉ to the National Concert Hall; to provide for the validity and effect of acts by RTÉ and the National Concert Hall in relation to that transfer; to extend the functions of the National Concert Hall and to make certain changes to its board and, for those purposes to amend the National Cultural Institutions (National Concert Hall) Act 2015; to increase the aggregate amount of liability in respect of undertakings given for cultural objects on loan from a person resident outside the State and, for

that purpose to amend the National Cultural Institutions Act 1997; to make certain changes to the objects of RTÉ and, for that purpose to amend the Broadcasting Act 2009; and to provide for related matters.

National Planning Policy Context

The key provisions of the national planning policy, including the Planning Guidelines, as it relates to the proposed project are set out. A summary list of the relevant national planning policies and planning guidelines consist of the following:

- All-Ireland Pollinator Plan 2021-2025
- Architectural Heritage Protection Guidelines for Planning Authorities
- Climate Action Plan 2023
- Guidelines for Landscape and Visual Impact Assessment
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (August 2018)
- Heritage at the Heart: Heritage Council Strategy 2018-2022
- Housing for All – A New Housing Plan for Ireland
- Investing in Our Transport Future – Strategic Investment Framework for Land Transport 2015
- National Adaptation Framework 2018 accompanied with Sectoral Adaptation Plan for Transport Infrastructure 2019
- National Biodiversity Action Plan 2017-2021
- National Development Plan 2021-2030
- National Investment Framework for Transport in Ireland 2021
- National Landscape Strategy for Ireland 2015-2025
- National Planning Framework (Project Ireland 2040)
- National Sustainable Mobility Policy
- Places for People – National Policy on Architecture
- Road Safety Strategy 2021-2030
- Smarter Travel – A Sustainable Transport Future; A new Transport Policy for Ireland 2009-2020
- Sustainable Urban Housing: Design Standards for New Apartments – Guidelines for Planning Authorities December 2022
- The National Cycle Policy Framework 2009-2020
- The Sustainable Development Goals National Implementation Plan 2018-2020
- The White Paper, Ireland's Transition to a Low Carbon Energy Future 2015-2030
- Town Centre First
- Traffic and Transport Assessment Guideline
- Transport Access for All 2012
- Urban Development and Building Height Guidelines 2020

Regional Planning Policy Context

The key provisions of the regional planning policy as it relates to the proposed project are now set out in the following sections. A summary list of the relevant regional planning policies consists of the following:

- Dublin Agglomeration Environmental Noise Action Plan 2018-2023
- Dublin Metropolitan Area Strategic Plan (MASP)
- Greater Dublin Area Cycle Network Plan
- Regional Spatial and Economic Strategy for the Eastern and Midland Region 2019-2031
- Transport Strategy for the Greater Dublin Area 2016-2035

Local Planning Policy Context

The key provisions of the local planning policy as it relates to the proposed project are now set out. A summary list of the relevant local planning policies consists of the following:

- Barryspark & Crowcastle Masterplan 2019
- Dardistown LAP 2013
- Docklands Public Realm Plan
- Dublin City and County Archaeology GIS Dataset
- Dublin City Biodiversity Action Plan 2021-2025
- Dublin City Centre – Developing the Retail Core
- Dublin City Council Climate Action Plan 2019-2024
- Dublin City Development Plan 2016-2022
- Dublin City Development Plan 2022-2028
- Dublin City Industrial Heritage Record
- Dublin City Park Strategy 2019-2022
- Dublin City Strategic Heritage Plan 2022-2028
- Estuary Central Masterplan
- Fostertown Masterplan 2019
- George's Quay Local Area Plan 2012 (Extended to July 2022)
- Grafton Street Quarter Public Realm Plan
- Local Environmental Improvement Plans
- Merrion Square Conservation Plan
- Moore Street and Environs Local Area Plan
- Moore Street Battlefield Site Plan
- National Concert Hall Statement of Strategy 2022-2026
- National Gallery of Ireland – Strategic Plan 2019-2023
- National Library Ireland 2022 – 2026 Strategy
- National Museum 2019 – 2022 Strategic Plan: Building Capacity, Driving Change
- Oireachtas Strategic Plan 2022-2024
- Scheme of Special Planning Control: O'Connell Street & Environs 2016
- Seatown North Masterplan

- Seatown South Masterplan
- South Fingal Transport Study 2019
- St. Stephen's Green Park Conservation Management Plan 2015-2020
- Strategic Development Regeneration Area 2: Ballymun
- Strategic Development Regeneration Area 18: National Concert Hall Quarter
- The Future of the South Georgian Core
- The Heart of Dublin – City Centre Public Realm Masterplan
- Your City Your Space – Dublin City Public Realm Strategy
- Your Swords – An Emerging City Strategic Vision 2035

**APPENDIX 2: ACOUSTIC ASSESSMENT CARRIED OUT BY MALONE
O'REGAN ENGINEERING CONSULTANT**



Acoustic Assessment
Kilmainham Square
On behalf of
Greendoor Property Management
Clontarf Road, Dublin 3



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**Acoustic Assessment
Kilmainham Square
Greendoor Property Management
Clontarf Road, Dublin 3**

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Appendices

Appendix A – Acoustic Guidance synopsis.

1 INTRODUCTION

Malone O'Regan Environmental (MOR) was commissioned by Greendoor Property Management (hereafter referred to as 'the Client') to undertake a Noise Impact Assessment (NIA) to review the impact from the Dart+ Southwest Project at the Kilmainham Square Apartments, located at Kilmainham Square, Co. Dublin (hereafter referred to as 'the Site'). The location of the Site (ITM X: 712580, ITM Y:733834) is shown in Figure 1-1 below.

Figure 1-1: Site Location



1.1 Scope

A desk-based review of the residential development, its location and the proposed Dart+ Southwest Project. The desk-based assessment included the following:

- Review of the following documents was undertaken by MOR:
 - Dart+ Southwest Project Public Consultation No. 2, Railway Noise In Europe,
 - State of the art report (UIC);
 - Client Submission.
- Review the Irish Rail on-site noise and vibration report and compare it to our own. (The findings of the on-site noise and vibration survey are covered on the Dart+ website, EIAR Report, and chapter on Noise).
- Review of what measures they propose for mitigate the extra noise pollution, vibration and dust that this proposed project would create.

To characterise the existing acoustic environment the following was undertaken:

- Acoustic assessment with regards to internal ambient noise levels/vibration.
 - Baseline noise survey in and outside apartment block; and,
 - Baseline vibration survey on the apartment block.

The findings from the above works are presented in this report.

The Kilmainham Square apartment block includes 87 apartments facing onto the rail line all of which are effected by the proposed development.

1.2 Competency

The analysis of the data and project management was conducted by a principal MOR acoustician – Kenneth Goodwin, with over 15+ years' experience and a Member of the Institute of Acoustics (MIOA) and Association of Acoustic Consultants of Ireland (AACI).

The project is therefore deemed to be completed by a 'competent person'. Kenneth was supported by Patricia Redondo, IOA member with over 2 years of experience in environmental assessment.

2 METHODOLOGY

A desk based and field-based review of the existing environment was undertaken, as per the methodologies outlined below. Following this, a detailed review of the Southwest+, was conducted to develop an understanding of the potential likely future impact.

This assessment is based on the project as presented within the Irish Rail documentation, which, to our understanding is not a detailed tender design, and as such subject to revision prior to works. It is not currently understood how variations, in the event this project is progressed will be handled between the regulator and contractor, or how residents effected will be involved in such.

2.1 Desk Based

The following documentation was reviewed and utilised in the preparation of this assessment:

- ISO 1996-1:2016 Acoustics - Description, measurements and assessment of environmental noise - Part 1: Basic quantities and assessment procedures 2003 [1];
- ISO 1996-2:2017 Acoustics - Description, measurement and assessment of environmental noise - Part 2: Determination of sound pressure levels [2];
- ISO 2631-2:2003 Mechanical vibration and shock — Evaluation of human exposure to whole-body vibration — Part 2: Vibration in buildings (1 Hz to 80 Hz) [3]
- S.I. No. 140/2006 Environmental Noise Regulations 2006 [4];
- S.I. No. 549/2018 European Communities (Environmental Noise) Regulations 2018 [5]; NRA Guidelines for the treatment of noise and vibration in National Road Schemes, 2004 [6];
- NRA Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes, March 2014 [7];
- World Health Organization's (WHO) Guidelines for Community Noise [8];
- BS 6841:2005 Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting [9];
- Reducing Railway Noise Pollution, Directorate-General for Internal Policies of the Union (European Parliament) 2012. [10]; and,
- Railway noise in Europe (State of the art report). International union of Railways. March 2016. [11]

An extended summary of key guidance is included in Appendix A.

2.2 Ambient Measurements

Ambient monitoring was conducted on 3rd of May 2023. Monitoring was undertaken using the appropriate guidelines detailed above.

2.2.1 Equipment

Noise measurements were carried out using a Type 1 sound level meter, equipped with Frequency Analysis Software. The monitoring equipment was calibrated prior to and post the measurement period using a Type 1 sound level field calibrator. Broadband noise levels were measured using the A-weighted network, and a fast-sampling interval, unless otherwise stated.

Laboratory calibration certificates for the SLM and the field calibrator are available on request.

Vibration measurements were carried out using 3No. Bruel and Kjaer Vibration Monitoring Terminal Type 3680 using a triaxial geophone and recording both Peak Particle Velocity (PPV) and Vibration Dose Value (VDV). The geophone was mounted on three spikes to ensure good base contact.

Calibration certificates are available upon request.

2.2.2 Parameters

The following noise parameters were recorded during each monitoring period:

- L_{Aeq} The continuous equivalent A-weighted sound pressure level. This is an 'average' of the sound pressure level;
- L_{Amax} This is the maximum A-weighted sound level measured during the sample period;
- L_{A10} This is the A-weighted sound level that is exceeded for noise for 10% of the sample period; and
- L_{A90} This is the A-weighted sound level that is exceeded for 90% of the sample period,

The 'A' suffix for the noise parameters denotes the fact that the sound levels have been 'A-weighted' in order to account for the non-linear nature of human hearing. All sound levels in this report are expressed in terms of decibels (dB) relative to 20 microPascals.

For vibration, the parameter PPV Definition (IEC 801-21-30) greatest instantaneous particle velocity during a given time interval. If measurements are made in 3-axis then the resultant PPV is the vector sum i.e. the square root of the summed squares of the maximum velocities, regardless of when in the time history those occur.

VDV is a parameter that combines the magnitude of vibration and the time for which it occurs. When assessing intermittent vibration, it is necessary to use the VDV, a cumulative measurement of the vibration level received over an 8-hour or 16-hour period.

Vibration baseline results are presented for velocity and acceleration. The results are presented in mm/s (PPV and PVS) and $ms^{-1.75}$ (VDV). It is important to note that the minimum sensitivity of the VDV measurements is $0.0001 ms^{-1.75}$. With low vibrations from passing trains the vast majority of measurements are at this low level. The vibration samples are representative of the vibration environment.

2.3 Acoustic Impact Assessment

A review of the prepared acoustic report on behalf of Irish Rail was undertaken in relation to the comparison of baseline value to MOR measured values, and to the predicted future impacts and mitigation strategy.

3 MONITORING

Noise monitoring were carried out on the balcony and inside Apartment 458, as well as on the ground floor inside the building near the emergency exit at the stair core of building 5C. The results are presented in Table 3-1 below.

Table 3-1: Noise Monitoring Results

Start time	Duration	Floor	L _{Aeq} (dB)	L _{A90} (dB)	L _{Afmax} (dB)
2023-05-03 12:04	0:25:36	9 – Inside	47	39	75
2023-05-03 12:30	0:30:00	9 – Inside	45	40	58
2023-05-03 13:00	0:30:00	9 – Inside	42	28	68
2023-05-03 13:30	0:30:00	9 – Inside	32	25	66
03/05/2023 12:00	0:30:00	9 – Outside*	57	51	76
03/05/2023 12:30	0:30:00	9 – Outside*	55	50	64
03/05/2023 13:00	0:30:00	9 – Outside*	56	52	72
03/05/2023 13:30	0:30:00	9 – Outside*	55	50	66
2023-05-03 14:27	0:30:00	0 – Inside	44	35	76

*A façade correction of -3dB have been applied to the results of the balcony outside.

Vibration monitoring were carried out at ground floor, second floor and sixth floor of Building 5C. The results are presented in Table 3-2.

A train log have been completed along with the vibration survey. It has been assumed that the duration of the train was one minute since the start of the record. Vibration data have been converted to m/s-1.75 from mm/s-1.75.

Table 3-2: Vibration monitoring results

Floor	Trains	PPV X/Tran	PPV Y/Long	PPV Z/Vert	PVS	VDV X/Tran	VDV Y/Long	VDV Z/Vert
Unit		mm/s				m/s ^{1.75}		
Ground floor	With trains	0.014	0.015	0.012	0.021	0.0027	0.0028	0.0018
	No trains	0.003	0.002	0.005	0.008	0.0008	0.0007	0.0005
Second floor	With trains	0.007	0.008	0.012	0.017	0.0004	0.0005	0.0026
	No trains	0.004	0.002	0.002	0.007	0.0002	0.0002	0.0007
Sixth floor	With trains	0.012	0.009	0.004	0.013	0.0004	0.0005	0.0009
	No trains	0.010	0.006	0.001	0.011	0.0003	0.0002	0.0004

4 MOR BASELINE DISCUSSION

The 9th floor external, patio results ranged from $L_{Aeq,T}$ of 55 to 57dB, following correction for façade proximity, while background levels, measured as $L_{A90,T}$ ranged from 50dB to 52dB.

Internally the room on the 9th floor reduced to an $L_{Aeq,T}$ of 32dB to 47dB and background value as $L_{A90,T}$ of 25dB to 40dB.

The first hour of the measurement on the 9th floor, the glass patio door was open during the measurements. The reduction through the closed glass patio door is estimated at ca. 23dB during the survey period.

The inside ground floor recording, with $L_{Aeq,T}$ of 44dB, is similar to the internal measurements obtained on the 9th floor.

The Irish Rail acoustic report noted baseline noise values in proximity to Kilmainham Square, (location ID NML9) of 69.8dB at 9th floor during the daytime hours. The measurements taken by MOR, accounting for façade correction, are up to 12.8dB lower than the average value presented in the Irish Rail acoustic report.

Vibration results are below the limits established in BS6472-2 for daytime for parameter VDV and presented in Table 14.8 from Chapter 14 Noise and Vibration. The Irish Rail acoustic report noted baseline vibration values up to 0.092 VDV $m/s^{1.75}$ with trains at ground floor. The measurements taken by MOR, are below the ones presented in the Irish rail acoustic report.

5 ACOUSTIC IMPACT ASSESSMENT REVIEW

5.1 Noise

Irish Rail proposed operational rail noise criteria are presented in table 14.7 of Chapter 14 Noise and Vibration and presented below in Table 5-1:

Table 5-1: Table 14.7. Operational Rail Noise Criteria

Daytime (07:00 – 23:00)	Night-time (07:00 – 23:00)
55 dB $L_{Aeq,16hr}$	45 dB $L_{Aeq,8hr}$

Chapter 14, Noise and Vibration of the Irish Rail EIAR states:

"In absence of specific statutory Irish guidance specifying airborne noise levels from rail operations, reference has been made to Transport Infrastructure Ireland (TII) Guidelines for the Treatment of Noise and Vibration in National Road Schemes, Revision 1 (2004) as the TII guidelines provide guidance on a structured approach to ameliorate as far as practicable road traffic noise. This approach has been adapted for rail noise.

Mitigation measures are deemed necessary when the following three conditions are satisfied at designated sensitive receptors:

- the rail noise level the proposed scheme together with other rail traffic in the vicinity is greater than the operational rail noise criteria;*
- the relevant noise level is at least 1dB more than the expected rail noise level without the proposed scheme in place; and*
- the contribution to the increase in the relevant noise level from the proposed scheme is at least 1dB."*

The following scenarios were modelled on behalf of Irish Rail:

- Baseline;
- Do Minimum (DM);
- Do Something (DS); and
- Do Something with Mitigation.

Further explanation for the scenarios are detailed in Chapter 4 Project Description from the EIAR. The predicted values presented for the difference scenarios DM, and DS will be use for the assessment.

Section 14.6.2.1.3 states that the model is validate where the rail noise is the dominant source. An assumption is made that only rail noise is modelled and the predicted results does not contain road noise or other ambient sources.

Table 5-2 below is extracted from Table 14.63 presenting the relevant NSR results for the Site.

Table 5-2: Extract from Table 14-63 from Chapter 14 Noise and Vibration.

Location ID	Description	Daytime - $L_{Aeq,16hr}$			Night-time $L_{Aeq,8}$			Mitigation Satisfied?			Mitigation required?
		Base	DM	DS	Base	DM	DS	a)	b)	c)	
R17	Kilmainham Square (3rd floor)	64	63.3	65.4	59.1	58.1	60.3	Yes	Yes	Yes	Yes
R17a	Kilmainham Square (9th floor)	69.8	61.1	62.3	65.4	55.9	57.2	Yes	Yes	No	No

5.2 Vibration

The results from the baseline conducted last year for Irish Rail are presented in Table 5-3. It is understood that the results are presented in Z axis, the one affected vertically, as there's no specification in the Chapter 14 Noise and Vibration.

Table 5-3: Extract from Table 14.22 from Chapter 14 Noise and Vibration

Monitoring Location	Description	PPV (mm/s) With Trains	PPV (mm/s) No trains	VDV (m/s ^{1.75}) With trains	VDV (m/s ^{1.75}) No trains
VML 6	Kilmainham Square (ground floor)	0.13	0.01	0.092	0.018
VML 7	Kilmainham Square (second floor)	0.06	0.01	0.039	0.019
VML 8	Kilmainham Square (Sixth floor)	0.04	0.01	0.028	0.009

Table 5-4 below presents an extract from the predicted values at two different distances, 3.5m and 10m, calculated and presented in Table 14.68 from the Chapter 14 Noise and Vibration. The values are below the limits established in BS6472-1. For properties 3.5m or closer to the tracks, a Slight to Low effect is predicted, with vibration at or just below limits outlined in the guidance, however at receptors 10m from the track, this is reduced to Negligible to not significant effect.

Table 5-4: Extract from Table 14.68 from Chapter 14 Noise and Vibration.

BS6472-2 Rating	In absence of appreciable Existing Level of VIBRATION		Impact Classification	Significance Rating
	Daytime (07:00-23:00)	Night-time (23:00 – 07:00)		
VDV level at which adverse comment is not expected	0.2	≤ 0.1		
Calculated VDV at properties 10m from nearest track	0.13	0.08	Negligible	Not Significant
Calculated VDV at properties near Hazel hatch 3.5m from nearest track	0.19	0.13	Low	Slight

Taking the results from Table 5-3 above for VML 6 (Ground floor) with a VDV of 0.092 (with trains) this is slightly lower than the predicted VDV at 10m (0.13VDV). VML 6 is ca.11m from the edge of rail. The explanation for the difference from rail vibration at VML 6 is not fully presented.

5.3 Mitigation

Regarding mitigation, Irish Rail explain that the installation of noise barriers is not effective due to the height of the buildings. Resilient rails have been considered for this location, however the mitigation provided by is limited. Therefore, the significance of effect at location R17, Kilmainham Square, was assessed to be long term negative moderate effect.

The predicted levels with mitigation presented in Table 14.70 from the Chapter 14 Noise and Vibration at Receptor 17 and Receptor 17a, representative of Kilmainham Square apartments at height 3rd floor and 9th floor are summarised below.

Table 5-5. Extract from Table 14.70 of Chapter 14. Noise and Vibration

Receptor ID	Description	Do Something with Mitigation		Significance Rating
		Daytime L _{Aeq,16hr}	Night-time L _{Aeq,8hr}	
R17	Kilmainham Square (3rd floor)	65.4	60.3	Moderate
R17a	Kilmainham Square (9th floor)	62.3	57.2	Not Significant

As extra mitigation, Irish rail acoustic report states:

"For locations where a significant effect is identified, and in absence of an engineering solution to mitigate the noise impact within the Project boundary, noise insulation, or the reasonable cost thereof, will be offered to eligible owners at properties lawfully occupied as a permanent dwelling."

This statement technically does not apply to R17 as the significance in Receptor 17 and Receptor 17a is Moderate and Not significant respectively, due to the change between DM and DS with mitigation is less than 3Db.

6 FINDINGS

These findings are based on the actual design for the Proposed Project. This design is likely to suffer variations, and will affect to the assessment of the noise and vibration.

6.1 Methodology

The NRA [5] guidance states that:

"The parameter most commonly used for the assessment of noise impact is L_{Aeq} , which is defined as being the A-weighted equivalent continuous steady sound level during the sample period and effectively represents an average value.

The noise level associated with a stream of traffic is not constant but varies from moment to moment. In order to assess the overall noise level produced by traffic, a statistical single-figure index designated L_{Aeq} has been employed in the UK and Ireland to date. This measurement is defined as the arithmetic mean of the A-weighted noise levels exceeded for 10% of the time in each of the 18 1-hour periods between 6am and midnight."

Irish Rail present the noise data in $L_{Aeq,16hr}$, a parameter that is not representative of the road noise. WHO guidelines and the European Noise Directive (END) recommend the parameter L_{den} to represent the noise from railways.

WHO guidelines states in Section 3.2:

"For average noise exposure, the GDG (Guideline Development Group) strongly recommends reducing noise levels produced by railway traffic below 54Db L_{den} , as railway noise above this level is associated with adverse health effects."

The parameter L_{den} is therefore, in the absence of national criteria, arguable a more appropriate criteria with WHO guideline values, and enabling integration of this assessment to the nationally required strategic noise mapping for major rail, road, airports and industry, so as to represent the noise levels from the Proposed Development.

6.2 Operational Noise

The predicted values are lower than the baseline measurements. It is understood by MOR that this reduction is due to modelling only assessing railway noise.

Based on Table 14.63 Location 17 at 3rd floor will be eligible for mitigation however the assessment identified the height of the receptor and states that will make impracticable for standard mitigation and by Table 14.70 of Chapter 14 Noise and Vibration the significance of Moderate is applied to this receptor, thereby removing the option of the reasonable cost of insulation.

Baselines measurements conducted by MOR are below the ones presented in Irish Rail acoustic report, as such a query should be raised in relation robustness of the Irish rail baseline survey at this location.

6.3 Vibration

The vibration measurements are representative of trains passing by. The measurements are shown to be below the limits.

With the Proposed Development, there is no indication future operations will effect an increase in vibration. However, an increase of frequency of trains will result in existing vibration noted from passing trains to occur more frequently.

6.4 Mitigation

There's no mitigation proposed for the Receptor 17 and 17a as the results of the predicted Do Something with Mitigation are the same as the Do Something predicted results. As presented,

the installation of noise barriers will not be effective in this location due to the height of the buildings.

The report has proposed extra mitigation as stated in Section 5.3 when the change in dB is greater than 3dB between the Do Minimum and Do Something with Mitigation scenarios. This difference for both receptors is presented below

Table 6-1: Difference between DS with Mitigation and Do Minimum.

Receptor ID	Description	Do Minimum (dB)	Do Something with Mitigation (dB)	Change in dB	Significance Rating
R17	Kilmainham Square (3rd floor)	63.3	65.4	2.1	Slight/Moderate
R17a	Kilmainham Square (9th floor)	61.1	62.3	1.2	Slight/Moderate

For receptor R17a the significance rating presented in the Irish Rail report in Table 14.70 is Not significant, this is due to the round down of 1.2dB to 1dB. MOR have used the decimal to rate the significance.

In this particular scenario, at Kilmainham Square, the reported ambient noise levels are already considerably elevated, surpassing the designated noise criteria of L_{den} 54dB. An assessment is conducted, by the applicant, wherein a minor alteration in the noise levels would likely go unnoticed, whereas a more substantial modification could potentially lead to notice and hold significance. The Magnitude of Impact is from the change in dB, this is presented in Table 6.2, an extract of Table 14.15 from the Chapter 14 Noise and Vibration.

However, it should be noted, this allows for noise creep to occur, with minor elevations over time, result in significant noise impact. Furthermore the objectives of END is to move to a future where major sources of noise, such as rail, are reduced. This assessment does not appear to be in line with the END.

Table 6-2: Extract of Table 14.15. Operational Rail Noise - Significance of the Impact

Predicted Noise Level above the Noise Criteria / Baseline / Change in Rail Noise (dB)	EPA Magnitude of Impact	Initial Significance Rating	Modifier
Less than 1.0	Negligible	Not Significant	Depends on the absolute level, acoustic context, difference in noise level and likely perception of change by residents, duration, and frequency.
1.0 to 2.9	Low	Slight/ Moderate	
3.0 to 4.9	Low/Medium	Moderate/Significant	
5.0 to 9.9	Medium	Significant/Very Significant	
Greater than or equal to 10.0	High	Profound	

7 CONSIDERATIONS

Following discussion with representatives of the apartment unit the below considerations are thought relevant in the assessment of the project.

- To include an assessment on existing maintenance works, including for the acoustic monitoring of such, to fully inform future impacts associated with regular maintenance works which occur typically during night hours for operational reasons.
- Proposed Construction will take place during night-time hours and following the Irish Rail acoustic report states: *"during the construction there is potential for a very significant and profound negative residual effects at a small of locations."* It is requested clear, delineation of such impacts at the Site, and the measures to be undertaken on behalf of Irish Rail to accommodate this level of construction impact on residents. Regardless of mitigation, a commitment to continuous acoustic monitoring publicly available for affected residents during such works would be expected in the EIAR.
- Vibration testing is felt throughout the development, including in south facing apartments. The statement that *'there will be no significant vibration arising from the proposed Project in the operational phase and therefore no mitigation measures are proposed'* is therefore deemed at odds with the existing public response, specifically at this Site.
- As mitigation measures in earlier stages of community consultation (early 2021), the possibility of an overhead canopy (tunnel) was suggested for the area of the line that immediately adjoins Kilmainham Square, extended from South Circular Road bridge. This alternative to a noise barrier, as identified within the Irish Rail assessment as in effective, would potentially bring acoustic benefits, worth exploring and in keeping with END objectives of reducing noise from major infrastructure.
- Regarding Building Damage Mitigation, there's a concern that Irish Rail report need to ensure that there's no damage to the boundary wall or to Kilmainham Square Buildings. Pre and post building surveys should be included with the project and a detailed managements and cost plan in the event of any damage outlined.
- Noise and vibration mitigation at source are not clearly outlined within the chapter – such as:
 - o Location of the electrified vs. diesel lines;
 - o Use of innovative technologies, such as diffractive barriers;
 - o Use of techniques including lowering/covering track, use of rail absorbers, use of concrete sleepers, use of longer welded rails,
- Existing impacts from rail vibration on telecommunications, specifically fibre cabling, located on the rail side of the Site, is experienced. However, there is no assessment of the impact on these cables from the project outlined, nor the measures to be taken to prevent/mitigate such impacts.

8 REFERENCES

- [1] ISO, Acoustics – Description, measurement and assessment of environmental noise -- Part 1: Basic quantities and assessment procedures, International Organization for Standardization, 2016.
- [2] ISO, Acoustics – Description, measurement and assessment of environmental noise -- Part 2: Determination of sound pressure levels, International Organization for Standardization, 2017.
- [3] ISO, ISO 2631-2:2003 Mechanical vibration and shock — Evaluation of human exposure to whole-body vibration — Part 2: Vibration in buildings (1 Hz to 80 Hz), ISO, 2003.
- [4] Statutory Instrument , "S.I. 140/2006 Environmental Noise Regulations," Government of Ireland, Dublin, 2006.
- [5] Statutory Instrument, "S.I. No. 549/2018 European Communities (Environmental Noise) Regulations," Government of Ireland, Dublin, 2018.
- [6] NRA, "Guidelines for the Treatment of Noise and Vibration in National Road Schemes," National Roads Authority , 2004.
- [7] NRA, "Good Practice Guidance for the Treatment of Noise During the Planning of National Road Schemes," National Roads Authority, Dublin, March 2014.
- [8] WHO, Guidelines on Community Noise, Geneva: World Health Organization , 1999.
- [9] BSI, BS 6841:2005 Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting, British Standard, 2005.
- [10] Directorate-General for Internal Policies of the Union (European Parliament), Reducing railway noise pollution, 2012.
- [11] International Union of Railways, Railway Noise in Europe, March 2016.

APPENDICES

APPENDIX A

APPENDIX A – LIST OF PLANNING LEGISLATION AND POLICY DOCUMENTS

This appendix provided a non-exhaustive list of planning policy, legislation, and guidelines used in the MOR noise assessment.

The following documentation was reviewed and utilised in the preparation of this assessment:

1.1 ISO 1996-1:2016 Acoustics - Description, measurements and assessment of environmental noise - Part 1: Basic quantities and assessment procedures 2003;

ISO 1996-1:2016 defines the basic quantities to be used for the description of noise in community environments and describes basic assessment procedures. It also specifies methods to assess environmental noise and gives guidance on predicting the potential annoyance response of a community to long-term exposure from various types of environmental noises. The sound sources can be separate or in various combinations. Application of the method to predict annoyance response is limited to areas where people reside and to related long-term land uses.

Community response to noise can vary differently among sound sources that are observed to have the same acoustic levels. This part of ISO 1996 describes adjustments for sounds that have different characteristics. The term "rating level" is used to describe physical sound predictions or measurements to which one or more adjustments have been added. On the basis of these rating levels, the long-term community response can be estimated.

The sounds are assessed either singly or in combination, allowing for consideration, when deemed necessary by responsible authorities, of the special characteristics of their impulsiveness, tonality, and low-frequency content, and for the different characteristics of road-traffic noise, other forms of transportation noise (such as aircraft noise), and industrial noise.

ISO 1996-1:2016 does not specify limits for environmental noise.

1.2 ISO 1996-2:2017 Acoustics - Description, measurement and assessment of environmental noise - Part 2: Determination of sound pressure levels;

This document describes how sound pressure levels intended as a basis for assessing environmental noise limits or comparison of scenarios in spatial studies can be determined. Determination can be done by direct measurement and by extrapolation of measurement results by means of calculation. This document is primarily intended to be used outdoors but some guidance is given for indoor measurements as well. It is flexible and to a large extent, the user determines the measurement effort and, accordingly, the measurement uncertainty, which is determined and reported in each case. Thus, no limits for allowable maximum uncertainty are set up. Often, the measurement results are combined with calculations to correct for reference operating or propagation conditions different from those during the actual measurement. This document can be applied on all kinds of environmental noise sources, such as road and rail traffic noise, aircraft noise and industrial noise.

1.3 ISO 2631-2:2003 Mechanical vibration and shock — Evaluation of human exposure to whole-body vibration — Part 2: Vibration in buildings (1 Hz to 80 Hz)

ISO 2631-2:2003 concerns human exposure to whole-body vibration and shock in buildings with respect to the comfort and annoyance of the occupants. It specifies a method for measurement and evaluation, comprising the determination of the measurement direction and measurement location. It defines the frequency weighting W_m which is applicable in the frequency range 1 Hz to 80 Hz where the posture of an occupant does not need to be defined.

Whilst it is often the case that a building will be available for experimental investigation, many of the concepts contained within ISO 2631-2 would apply equally to a building in the design process or where it will not be possible to gain access to an existing building. In these cases, reliance will have to be placed on the prediction of the building response by some means.

ISO 2631-2 does not provide guidance on the likelihood of structural damage, which is discussed in ISO 4866. Further, it is not applicable to the evaluation of effects on human health and safety.

Acceptable magnitudes of vibration are not stated in ISO 2631-2.

1.4 Environmental Noise Directive – The main EU law to identify and address noise pollution levels.

The Environmental Noise Directive is the main EU law to identify noise pollution levels and act on them. It focuses on four action areas:

- Determining exposure to environmental noise and assessing its health effects at single dwelling level;
- Ensuring that information on environmental noise and its effects is made available to the public;
- Preventing and reducing environmental noise;
- Preserving environmental noise quality in areas where it is good.

The Directive requires EU countries to prepare and publish noise maps and noise management action plans every 5 years for

- Agglomerations with more than 100 000 inhabitants;
- Major roads (more than 3 million vehicles a year);
- Major railways (more than 30 000 trains a year);
- Major airports (more than 50 000 take-offs or landings a year, including small aircrafts and helicopters).

When developing noise management action plans, national authorities must consult the concerned public.

The Directive does not set limit or target values for environmental noise, nor does it prescribe the measures to be included in the action plans. This is for the competent Member State authorities to decide.

The Directive serves as a knowledge base to amend or introduce noise limits on road, railway and aircraft vehicles.

1.5 S.I. No. 140/2006 Environmental Noise Regulations 2006;

This statutory instrument was enacted for the purpose of giving effect to Council Directive 2002/49/EC relating to the assessment and management of environmental noise.

Objective and Scope

(1) These Regulations provide for the implementation in Ireland of a common approach within the European Community intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise.

(2) These Regulations shall apply to environmental noise to which people are exposed, in particular in built up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, near hospitals, and near other noise-sensitive buildings and areas.

(3) These Regulations shall not apply to noise caused by an exposed person noise from domestic activities, noise created by neighbours, noise at work places, noise inside means of transport, or noise due to military activities in military areas.

1.6 S.I. No. 549/2018 European Communities (Environmental Noise) Regulations 2018;

This statutory instrument was enacted for the purpose of giving effect to Directive (EC) 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise, as amended by Commission Directive (EU) 2015/996 of 19 May 2015 establishing common noise assessment methods.

Objective and Scope

4. (1) These Regulations provide for the implementation in Ireland of a common approach within the European Union intended to avoid, prevent or reduce on a prioritised basis the harmful effects, including annoyance, due to exposure to environmental noise.

(2) These Regulations shall apply to environmental noise to which people are exposed, in particular in built up areas, in public parks or other quiet areas in an agglomeration, in quiet areas in open country, near schools, near hospitals, and near other noise-sensitive buildings and areas.

(3) These Regulations shall not apply to noise:

- a) caused by the person exposed to the noise;
- b) noise from domestic activities;
- c) noise created by neighbours;
- d) noise at work places;
- e) noise inside means of transport; or
- f) noise due to military activities in military areas.

(4) The common assessment methods contained in the Annex shall be used for the purpose of other EU legislation where that legislation refers to Annex II to Directive 2002/49/EC whether as replaced by the Annex to the Commission Directive or otherwise

1.7 NRA Guidelines for the treatment of noise and vibration in National Road Schemes, 2004;

Following publication of the initial draft guidelines for treatment of noise and vibration in national road schemes, the Authority committed itself to review the guidelines within the first six months of implementation. As part of this review a validation study was undertaken on the recommended TRL conversion methodologies and the experiences acquired from the implementation of the original draft guidelines. The validation studies concentrated on the three TRL conversion methodologies presented in Appendix 1 of the initial draft guidelines. These studies focused on a comparison of Lden and Lnight values derived from measurements at 70 national roadside locations with calculated Lden and Lnight values using the three conversion methodologies. The study also compared measured LA10(18hr) with derived and calculated Lden and Lnight values. The primary objective of the validation studies was to assess the applicability of the specified design criteria and the functionality of the various TRL conversion methodologies for Irish road conditions. This review provides guidance on the revised design criteria and the application of validated approaches to deriving the Lden and Lnight values as well as an overview of the baseline monitoring and model validation procedure.

1.8 NRA Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes, March 2014;

The NRA commissioned Atkins Ireland to undertake a study of Environmental Impact Statements of national road schemes four years after the publication of the Guidelines for the Treatment of Noise and Vibration in National Road Schemes, as revised in October 2004. The study has also looked at Constraints Studies, Route Selection Studies, present practice in other countries both in Europe and beyond, and recently published revisions to the UK DMRB which contains advice on noise prediction.

The purpose of the review was to evaluate the effectiveness of the Guidelines, including the effectiveness of noise mitigation measures, in achieving the NRA's noise design goal as set out in the Guidelines. A further aim of the review was to identify good practice and potential deficiencies in current practice, and to provide advice on the practice to be adopted in the planning of national road development proposals.

In addition to the work undertaken by Atkins Ireland, the NRA commissioned a noise research study with Trinity College Dublin looking at the design of noise barriers and the development of a quick look method for assessing the effectiveness of noise barriers in-situ. The present Good Practice Guide is based on the lessons learned from these two studies. It provides advice for the information and use by acousticians, which also has some relevance for traffic, motorway and pavement engineers. The advice amplifies and supplements the Guidelines, and should be read in conjunction with them.

The NRA Guidelines and the further guidance on good practice offered here constitute guidance in general. They do not constitute universal requirements which must be followed precisely on every scheme. The guidance is offered to encourage and facilitate good practice. It is not offered as a replacement for considered professional judgement in the context of each individual scheme. Each section of the guidance ends with a checklist. Ticking all the boxes is not the aim. The checklist is there to help the acoustician to make a positive contribution to the generation of noise-sensitive road schemes.

1.9 World Health Organization's (WHO) Guidelines for Community Noise:

Noise is an important public health issue. It has negative impacts on human health and well-being and is a growing concern. The WHO Regional Office for Europe has developed these guidelines, based on the growing understanding of these health impacts of exposure to environmental noise. The main purpose of these guidelines is to provide recommendations for protecting human health from exposure to environmental noise originating from various sources: transportation (road traffic, railway and aircraft) noise, wind turbine noise and leisure noise. They provide robust public health advice underpinned by evidence, which is essential to drive policy action that will protect communities from the adverse effects of noise. The guidelines are published by the WHO Regional Office for Europe. In terms of their health implications, the recommended exposure levels can be considered applicable in other regions and suitable for a global audience.

1.10 BS 6472-1:2008 Guide to evaluation of human exposure to vibration in buildings. Vibration sources other than blasting;

Considers characteristics, measurement and estimation and assessment aspects of vibration in buildings and the impacts on the occupants. Looks at human response, frequency weighting curves and the vibration dose value (VDV) can be used to estimate the probability of adverse comment from those experiencing vibration in a building.

1.11 Reducing Railway Noise Pollution, Directorate-General for Internal Policies of the Union (European Parliament) 2012.;

12 million EU inhabitants are affected by railway noise during the day and 9 million during the night. This study lists measures, funding and regulations to reduce it. The introduction of modern rolling stock will lower noise most significantly. In the short run, the replacement of cast iron by composite brake blocks on rail freight cars is most important. Developing a regulation scheme for a staged process towards low-noise rolling stock is the heart of a rail noise abatement strategy.

1.12 Railway noise in Europe (State of the art report). International union of Railways. March 2016.

Railway transport is the most sustainable transport mode, as it consumes less energy, needs less pace and produces less CO₂ than any other transport mode. However, noise has long

been the main environmental challenge for railway stakeholders. The public and their political representatives urge railway stakeholders to become quitter. But a lot has been achieved, and more activities are on the way. This report describes recent developments and their impact.