

A5.19

**Wider Effects
Report**

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Appendix A. GIS Analysis of Receptors

1. Introduction

1.1 Overview

This report assesses whether the power to deviate within the proposed limits of deviation (LOD) for the MetroLink project as identified on the property drawings that accompany this Railway Order (RO) application would alter the predicted significant impacts reported in the Environmental Impact Assessment Report (EIAR) by creating new or different (usually increased) significant impacts.

The statutory powers contained within the Railway Order allow for changes within the LOD to occur where it is found that the spatial position of the MetroLink (hereafter referred to as the proposed Project) may need to be adjusted, mainly for reasons of engineering practicability. The LOD will allow permanent project elements to be constructed within a defined envelope that would accommodate alterations in designs and layouts. These limits allow those who are appointed to implement the powers to deviate within stipulated tolerances/parameters from the project design and alignment when constructing the proposed Project should it be required.

The LOD applied for as part of this RO application defines the scope of the construction of the proposed Project beyond the geographical extent of the project works as described in Schedule 1 of the Railway Order application, should it be required.

All of these elements of the proposed Project consent can allow for flexibility in the finalisation of the detailed design and construction, subject to the constraints outlined in this report. This report provides an assessment of the maximum adverse environmental impacts of the LOD in both the construction and operational phases and outlines mitigation measures which will be applied where required or constraints to the proposed LOD where the effects of the predicted impacts cannot be mitigated in order to avoid any impacts or increase in impacts beyond what has been evaluated in the EIAR.

1.2 Limits of Deviation

The LOD is the maximum distance that a railway undertaking is authorised to deviate from the lines of the plans and drawings lodged with a successful application for a RO. The requirement for LOD is outlined in the Transport (Railway Infrastructure) Act 2001 (the 2001 Act).

The LOD is detailed in Chapter 4 (Description of the MetroLink Project) of the EIAR. To summarise, the LOD are detailed in Table 1.1.

Table 1.1: Limits of Deviations

Project Element	Vertically (upwards) (m)	Vertically (downwards) (m)	Horizontally (in all directions from centre line) (m)
Surface works (not impacting on public roadways)	2	2	5
Surface works (impacting on public roadways)	1	1	2.5
Tunnel Alignment	5	10	15

Project Element	Vertically (upwards) (m)	Vertically (downwards) (m)	Horizontally (in all directions from centre line) (m)
Retained Cut and Cut and Cover Alignment	1	2	2.5
Station Box Locations	5	10	2

It should be noted that any amendments to the alignment are expected to generally occur within construction tolerances, which are much lower than the potential variance indicated in Table 1.1. The maximum construction tolerance is of the order of 200mm in any direction.

However, the LODs set for the proposed Project are to accommodate any unknowns that might be encountered at the construction phase of the proposed Project. The assessment presented in this report is an overview of the potential environmental impacts that could be realised should the proposed project deviate within the extents of these limits.

1.3 Environmental Analysis and Assessment

An environmental sensitivity analysis has been undertaken to identify:

- If the environmental impacts of changes to the project alignment within the LOD are feasible; and
- Whether such changes are more significant and/or different from those assessed in the Environmental Impact Assessment Report, such that the assessment presented in the EIAR would not address all impacts and required mitigation measures. The analysis has regard to all of the environmental assessments undertaken in the EIAR.

The assessment was undertaken in three distinct stages which are as follows:

- **Stage 1 Identification of Constraints to the application of LODs:** A review of the proposed project alignment to identify locations where there is no scope for LODs to be applied due to constraints.
- **Stage 2 Scoping Analysis:** An analysis of the potential for environmental impacts not identified within the environmental assessment presented in the EIAR to arise due to alterations to the project alignment within the LOD. Where there is no potential for significant additional environmental impacts for specific disciplines for the different LODs, these are not considered further. However, where the analysis identified any potential for different/additional or increased impacts (than those identified in the EIAR), further analysis is undertaken in the Stage 3 Detailed Analysis.
- **Stage 3 Detailed Analysis:** Where Stage 2 identified the scope for potential environmental impacts beyond those identified in the EIAR, a more detailed assessment was undertaken in Stage 3. This analysis was undertaken to identify the potential additional receptors that could be impacted should the alignment be changed within the LOD and to identify the requirement for mitigation measures that can be adopted to ensure residual impacts arising are insignificant. This detailed analysis was undertaken having regard to the analysis presented in the EIAR and was based on a spatial analysis of additional receptors potentially impacted by changes to the alignment within the LOD.

1.4 Stage 1 Identification of Constraints to the Application of LODs

The assessment undertaken has identified a number of locations where it is not possible to apply LODs due to constraints in the immediate vicinity of the proposed alignment. These locations are listed below progressing from North to South along the alignment

- Cut and Cover adjacent to Estuary Court – no scope for lateral deviation given the proximity to residential properties and access road;
- Retained cut alignment section adjacent to Woodie’s Seatown – no scope for lateral deviation given the proximity of the alignment to the building structure and R132 Swords Bypass;
- Seatown Station adjacent to Hertz Europe Head Office – no scope for lateral deviation given the proximity of the alignment to the building structure and R132 Swords Bypass;
- Retained cut alignment adjacent to Ashley Avenue – no scope for lateral deviation given the proximity to residential properties and access road;
- Retained cut alignment section adjacent to Fujitsu Ireland Limited – no scope for lateral deviation given the proximity of the alignment to the building structure and R132 Swords Bypass;
- Retained cut alignment section adjacent to Swords Veterinary Hospital – no scope for lateral deviation;
- No scope for the application of LODs at underground station locations including the following:
 - Glasnevin Station and interchange – no scope for lateral deviation due to the existing infrastructure at this location including Iarnród Eireann, the Royal Canal, adjacent residential buildings and roadway;
 - O’Connell Street Station – no scope for lateral deviation do to level of existing infrastructure here and the possibility of interfaces with oversight development;
 - St Stephen’s Green Station – no scope for vertical deviation upwards due to restrictions on tree roots in St Stephen’s Green; and
 - Charlemont Station – no scope for lateral deviation due to interfaces with oversight development and adjacent residential properties located on Dartmouth Square.
- Underground tunnel section under Trinity College Dublin – no scope for vertical deviation upwards beyond construction tolerances due to sensitive receptors to vibration and electromagnetic interference, furthermore no scope for lateral deviation to the east due to proximity to sensitive receptors.
- Underground tunnel section Grand Canal/Charlemont Station – no scope for vertical deviation upwards due to sensitive receptors to proximity of the Grand Canal drainage Sewer.

1.5 Stage 2 Scoping Analysis

The outputs of the Stage 2 Scoping analysis are summarised in Table 1.2. The results are presented for each environmental discipline having regard to the LODs outlined for Surface Works, Retained Cut areas and Tunnelled sections as outlined in Table 1.1 above. The summary presented takes account of an analysis undertaken within Geographical Information Systems (GIS) of additional receptor types within the LOD distances which could be affected by change of the alignment within the LOD. The specialists who authored each of the EIAR chapters were engaged in the analysis. This analysis entailed workshopping these areas with the appropriately qualified specialists in terms of identifying potential for additional environmental effects having regard to the assessment undertaken in the relevant EIAR chapter This analysis involved overlaying the LODs with GIS data on sensitive

location/receptors for their consideration. Appendix A presented the counts of receptors for individual topics within the extent of the LODs.

Locations and disciplines where amendments to the alignment within the statutory LOD have been confirmed not to give rise to new or different predicted significant effects are not considered further in this report.

Table 1.2: Screening of LOD Impacts by EIAR discipline

Chapter	Project Element	Vertically Upwards	Vertically Downwards	Horizontally (in all directions from centre line) (m)	Rationale
Traffic & Transport	<i>Surface Works</i>	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The assessment of impacts in the T&T chapter is based on a robust and detailed assessment of potential impacts on traffic, public transport and active transport modes. The proposed LODs affecting works at ground level in the vicinity of roads are not significant in the context of the assessment undertaken and will not impact the assessment outcomes in the EIAR.
	<i>Retained Cut</i>				
	<i>Tunnel</i>				
Human Health	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The scale of variation to the extent of the proposed LOD will not impact the assessment outcomes in the EIAR as the assessment presented is based on an analysis at a higher more general level. Having regard to potential localised effects, the assessment of impacts is based on the conclusions of other technical chapters in the EIAR.
	Retained Cut				
	Tunnel	Dependent on Groundborne Noise & Vibration assessment.	No potential for significant additional Impacts	Dependent on Airborne Noise & Vibration assessment	
Population and Land use	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The scale of variation to the extent of the proposed LOD will not impact the assessment outcomes in the EIAR as the assessment presented is based on an analysis at a higher more general level.
	Retained Cut				
	Tunnel				
Electromagnetic Compatibility & Stray Current	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	Potential vertical changes will not result in significant impacts beyond those assessed in the EIAR, potential horizontal changes could impact different receptors.
	Retained Cut				

Chapter	Project Element	Vertically Upwards	Vertically Downwards	Horizontally (in all directions from centre line) (m)	Rationale
	Tunnel	Potential additional Impact	No potential for significant additional Impacts	Potential Impact significant additional Impacts	Potential vertical changes downward will not result in significant impacts beyond those assessed in the EIAR, whereas vertical changes upwards could increase AC and DC levels at receptors. Potential horizontal changes could also impact different receptors.
Airborne Noise & Vibration	Surface Works	Potential additional impact	No potential for significant additional Impacts	Potential additional impact	Potential vertical downwards changes will not result in significant impacts beyond those assessed in the EIAR although upward changes could impact the effectiveness of noise barriers. However, potential horizontal changes within the LOD could result in impacts on different receptors arising from airborne noise & vibration.
	Retained Cut	Potential additional impact	No potential for significant additional Impacts	Potential additional impact	
	Tunnel	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	No impacts at surface level.
Ground-borne Noise & Vibration	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	Potential additional impact	Potential vertical changes will not result in significant changes to the impacts identified in the EIAR. However, potential horizontal changes could result in impacts on different receptors.
	Retained Cut	No potential for significant additional Impacts	No potential for significant additional Impacts	Potential additional impact	
	Tunnel	Potential additional impact	Potential additional impact	Potential additional impact	Potential vertical changes downward will not result in significant changes to the impacts identified in the EIAR However, changes upwards would increase potential adverse impacts.

Chapter	Project Element	Vertically Upwards	Vertically Downwards	Horizontally (in all directions from centre line) (m)	Rationale
					Potential horizontal changes could result in impacts on different receptors than those assessed in the EIAR.
Biodiversity	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The scale of variation within the LOD will not impact the overall assessment outcomes presented in the EIAR as the assessment is not sensitive to changes in the surface level alignment of between 1 and 5 metres having regard to the habitats identified along the alignment.
	Retained Cut				
	Tunnel				
Air Quality	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The scale of variation within the LOD will not impact the assessment outcomes presented in the EIAR as the assessment is not sensitive to changes in the surface level alignment of between 1 and 5 metres.
	Retained Cut				
	Tunnel	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	No impacts at surface level.
Climate	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The Climate assessment entails calculations having regard to GHG emissions arising from the proposed project and is independent of specific geographic locations. The resilience of the proposed Project to climate change impacts is also undertaken at a scale where the proposed LODs are irrelevant.
	Retained Cut				
	Tunnel	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	
Hydrology	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	Potential vertical variations within the LOD will not impact the assessment outcomes, presented in the EIAR. Potential horizontal changes within the LOD do not cross any additional waterbodies to those assessed in the EIAR, and
	Retained Cut				

Chapter	Project Element	Vertically Upwards	Vertically Downwards	Horizontally (in all directions from centre line) (m)	Rationale
					so there are no significant additional environmental impacts.
	Tunnel	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential impacts on surface waterbodies.
Hydrogeology	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The scale of variation within the LOD will not impact the assessment outcomes presented in the EIAR.
	Retained Cut				
	Tunnel				
Soils & Geology	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The scale of variation within the LOD will not impact the assessment outcomes presented in the EIAR as the hydrogeological assessment is based on analysis of potential impacts on waterbodies that are at a much greater scale.
	Retained Cut				
	Tunnel				
Land Take	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	Potential vertical changes within the LOD will not impact the assessment outcomes, presented in the EIAR. Potential for minor changes if there are changes to horizontal alignment introduced but would not be expected to be significant in terms of overall land take.
	Retained Cut				
	Tunnel	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential impacts at ground level.
Infrastructure & Utilities	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	Vertical and horizontal alignment changes are potentially significant where a shift of alignment could impact on utilities crossing the alignment.
	Retained Cut	Potential additional impact	No potential for significant additional Impacts	No potential for significant additional Impacts	

Chapter	Project Element	Vertically Upwards	Vertically Downwards	Horizontally (in all directions from centre line) (m)	Rationale
	Tunnel	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The tunnel alignment is below the level of infrastructure and utilities.
Agronomy	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	Potential changes within the LOD at ground level within the LODs are not sufficient to affect the overall assessment outcomes in the assessment undertaken in the EIAR.
	Retained Cut				
	Tunnel	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	
Materials & Waste Management	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	Any changes in volumes of materials would not be significantly different to those currently assessed in the EIAR.
	Retained Cut				
	Tunnel				
Archaeology & Cultural Heritage	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	Potential additional Impact	The scale of variation within the LOD will not impact the assessment outcomes presented in the EIAR, with the exception of the potential impacts arising from horizontal variation within the LOD.
	Retained Cut	No potential for significant additional Impacts	No potential for significant additional Impacts	Potential additional Impact	
	Tunnel	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The scale of variation within the LOD will not impact the assessment outcomes presented in the EIAR as the alignment will be below areas where archaeological finds are found.
Architectural Heritage	Surface Works		No potential for significant additional Impacts	Potential additional Impact	The scale of variation within the LOD will not impact the assessment outcomes presented in the EIAR.
	Retained Cut				

Chapter	Project Element	Vertically Upwards	Vertically Downwards	Horizontally (in all directions from centre line) (m)	Rationale
	Tunnel	Potential additional Impact	No potential for significant additional Impacts		The scale of variation within the LOD will not impact the assessment outcomes presented in the EIAR
Landscape & Visual	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The assessment is undertaken based on an analysis of the potential for impacts on Local Landscape Character Areas (LLCAs) and on the visual amenity. The scale of variation within the LOD is not of a scale to impact the overall assessment outcomes presented in the EIAR.
	Retained Cut				
	Tunnel	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	
Risk of Major Accidents and Disasters	Surface Works	No potential for significant additional Impacts	No potential for significant additional Impacts	No potential for significant additional Impacts	The assessment is undertaken at a scale where the proposed amendments to the LOD is not significant and so does no effect the outcomes presented in the EIAR.
	Retained Cut				
	Tunnel				

1.6 Stage 3 Detailed Analysis

The following section describes the environmental disciplines identified in the Stage 2 Scoping Analysis which had been subject to further assessment. A commentary is provided on the likely significant environmental impacts which are predicted will result from a change in alignment with the proposed LODs. Where appropriate, references have been made to potential mitigation measures that will be employed in specific locations.

1.6.1 Electromagnetic Compatibility & Stray Current

The potential impacts arising during the construction and operational phases of the proposed Project are assessed in the EIAR chapter. The analysis entails modelling of potential impacts arising from Electromagnetic Interference (EMI) and stray current during the operational phase of MetroLink. The assessment identified no potential for significant effect during the construction phase. The outputs of the modelling are presented in the chapter as predicted EMI levels predicted as sensitive receptors along the alignment during operational phases of the proposed Project and mitigation measures required.

If there were to be changes in the tunnel depth in the upwards direction, there is the potential for increased impacts in relation to Electromagnetic Compatibility & Stray Current. A decrease in tunnel depth would result in higher

levels of current for receptors above the tunnel. Furthermore, a potential variation in the horizontal alignment of the tunnelled section within the LOD has potential to impact on receptors not identified as impacted in the EIAR.

However, an assessment of additional sensitive receptors within the full extent of the LOD that were not identified for the proposed alignment in the EIAR identified only a single additional sensitive location within this extent (Refer to Appendix A.1). The potential impacts on this single receptor would be dependent on the alignment chosen, should a change within the LOD be required. However, the mitigation measures proposed within the EIAR Chapter 12 (Electromagnetic Compatibility & Stray Current) will be effective at managing any potential impact, meaning that the residual impact identified in the chapter would be as presented in the EIAR chapter.

1.6.2 Airborne Noise & Vibration

The potential impacts arising during the construction and operational phases of the proposed Project are assessed in the EIAR chapter. The analysis entails modelling of potential impacts arising from aboveground construction activity and from the operation of MetroLink along aboveground sections. The outputs of the modelling are presented in the chapter as noise and vibration levels predicted as sensitive receptors along the alignment during both the construction and operational phases of the proposed Project and required mitigation measures.

In order to avoid or reduce significant airborne noise effects during operation, the proposed Project incorporates noise barriers in the form of landscape earthworks and/or noise fence barriers.

Where there are any horizontal changes to the alignment of the surface works within the extent of the LOD there could be changes in the receptors most impacted by airborne noise, if the route alignment moves closer to them. However, an analysis presented in Appendix A.1 has identified that there are no additional receptors impacted by the LOD that are not impacted by the existing project alignment.

As a result, the implementation of the proposed mitigation measures as described in the EIAR Chapter 13 (Airborne Noise & Vibration), would mean that there would be no predicted change to residual impacts identified within the EIAR chapter. The majority of mitigation measures during the construction phase of the proposed Project will be implemented at source i.e adjacent to the construction activity. In the event where mitigation measures are required at properties i.e the installation of noise insulation at a property, these measures will be implemented at impacted properties in agreement with the property owner and in line with the TII Airborne and Groundborne Noise Mitigation Policy.

1.6.3 Ground-borne Noise & Vibration

The potential impacts arising during the construction and operational phases of the proposed Project are assessed in the EIAR chapter. The analysis entails modelling of potential impacts arising from underground construction activity and from the operation of MetroLink. The outputs of the modelling are presented in the chapter as noise and vibration levels predicted at sensitive receptors along the alignment during both the construction and operational phases of the proposed Project and required mitigation measures to minimise identified impacts.

A reduction in tunnel depth would result in higher levels of ground-borne noise and vibration for receptors above the tunnel. Any horizontal changes to the alignment of the tunnelled sections would result in a change in the particular receptors that are most impacted by ground-borne noise and vibration where the route alignment moves closer to them and away from others. As identified in Appendix A.1 there are approximately 615 additional receptors within the extent of the LOD, that have not been identified as impacted in the EIAR chapter. A number of these receptors could be impacted should the alignment change within the LOD, while others currently identified as impacted would no longer be impacted. However, with the implementation of mitigation measures as described in the EIAR Chapter 14 (Groundborne Noise & Vibration) there would be no predicted overall change to residual impacts identified in the EIAR. During the construction phase these mitigation measures would require the introduction of a communication and public notification process to advise the public and potentially impacted stakeholders on the advancement of the TBM and other construction activity such as the use of blasting. All other

mitigation measures required during the construction phase would be implemented at source and so are independent of the specific receptor impacted. During the operational phase, all required mitigation measures entail the implementation of measures at source i.e the use of floating slab track at locations along the alignment.

1.6.4 Human Health

The Human Health chapter in the EIAR presents an assessment of the potential for impacts on human health during the construction and operational phases. The assessment is partially based on outputs of other assessments such as the airborne Noise & Vibration chapter and the groundborne Noise & Vibration chapter. As a result, if either of those assessments identified a potential for additional impacts associated with potential deviations within the LOD, these would also effect the human health assessment.

However, the assessments presented for these chapters identified that the mitigation measures proposed in those EIAR chapters would be sufficient to mitigate the impacts identified within the LOD. As a result, there is no potential for additional environmental impacts.

1.6.5 Infrastructure and Utilities

The potential impacts on infrastructure and utilities are assessed in the EIAR chapter having regard to the potential for significant disruption to the relevant material asset during the construction and operational phases. This assessment identified potential impacts and proposed mitigation measures. A change in the vertical alignment through the retained cut sections would have the potential to impact on the conclusions of the utilities assessment presented in the EIAR as any change within the extent of the LOD would have the potential to impact utilities that have not previously been identified in the EIAR. However, the proposed mitigation measures identified in Chapter 22 (Infrastructure & Utilities) i.e. diversion of utilities and measures to protect against potential settlement would ensure that the residual impacts identified in the EIAR would not be changed, should a change within the LOD be required.

1.6.6 Archaeology and Cultural Heritage

Any horizontal changes to the alignment could result in a change in the particular receptors that could be potentially impacted by the proposed Project. The analysis presented in the EIAR chapter identifies all potential sensitive receptors within the identified study area centred on the proposed Project alignment. The analysis presented in Appendix A.1 identified a single location where an additional sensitive receptor has been identified as being within the study area if a horizontal change to the east within the LOD is required. As with other archaeological and cultural heritage sites this location would be subject to archaeological testing, monitoring and excavation and will be preserved by record. Therefore, following the implementation of these mitigation strategies as outlined in Chapter 25 of the EIAR, the overall residual impacts would not vary from that presented in the EIAR.

1.6.7 Architectural Heritage

Any horizontal changes to the alignment could result in a change in the particular receptors that could be potentially impacted by the proposed Project. The analysis presented in the EIAR chapter identifies all potential sensitive receptors within the identified study area centred on the proposed Project alignment. The analysis presented in Appendix A.1 identified 71 additional locations listed on the NIAH and 86 additional locations on the DCC Record of Protected Structures within the extent of the LOD. However, these locations are all at surface level while the tunnel alignment passes underneath. As a result, there will be no direct impact on any of these sites should the tunnel alignment be amended within the LOD. In terms of potential for indirect impacts, settlement analysis has identified that locations where this may occur is limited to just two locations along the MetroLink alignment and at both of these locations' mitigation will be sufficient to ensure there are no permanent impacts. Therefore, following the implementation of these mitigation strategies as outlined in Chapter 26 of the EIAR, the overall residual impacts would not vary from that presented in the EIAR.

1.6.8 Mitigation Measures

In order to ensure that the environmental effects of the proposed Project will not exceed or be different to those set out in the EIAR, specific provisions/conditions relating to the control and management of the receiving environment have been included in the draft Construction Management Plan and draft Construction Environmental Management Plan, both of which documents will be updated following the grant of any RO to reflect all conditions imposed by the Board. The nominated appointed contractor(s) will take forward the detailed design and implementation of the proposed Project after the RO has been enacted. The appointed contractor will be required to comply with all environmental commitments set out in the RO and any further conditions set out by the Board.

Together, this will ensure that no impacts will arise that have not been identified, described and evaluated in the EIAR.

1.7 Conclusions

The analysis of the potential LOD set out in this document:

- Has identified areas where the LODs will not be applied (at Stage 1) and Identification of Constraints to the Application of LODs;
- Has identified in respect of which environmental factors, different impacts or increased impacts are predicted to arise if the proposed Project is developed within a different part of the LOD than the Project is proposed to be located (at Stage 2 Scoping Analysis); and
- Based on the assessments presented in the individual assessment chapters potentially different and/or additional impacts associated with possible deviations to the route and structures have been identified, within the stipulated LODs. It is concluded that there would be no change to the required mitigation measures or residual impacts arising from the application of the mitigation measures set out in the EIAR (Stage 3 Detailed Analysis).

Appendix A. GIS Analysis of Receptors

Table A.1 provides a count of additional receptors within the Study Areas with the addition of the LODs. This provides an over-estimate of additional receptors that are predicted to be impacted by the changes to the route within the LOD, as it considers the full distance either side of the route, whereas the route would potentially move in a single direction within the LOD.

Table A.1: GIS count of receptors

Chapter	Receptor Type	Study Area	Additional Receptors within Full LoD
General	<i>All Buildings</i>	0m	491
Electromagnetic Compatibility & Stray Current	<i>Research Facilities</i>	100m (tunnel sections)	0
	<i>Hospitals/Hospices</i>		0
	<i>Healthcare Facilities</i>		1
	<i>Recording Studios</i>		0
	<i>Veterinary Clinics</i>		0
Airborne Noise and Vibration	<i>Residential Receptors</i>	300m (surface works)	0
	<i>Nursing Homes</i>		0
	<i>Education/Daycare</i>		0
	<i>Healthcare</i>		0
	<i>Recording Studios</i>		0
Ground borne Noise and Vibration	<i>Residential Receptors</i>	100m (tunnel sections)	615
	<i>Nursing Homes</i>		0
	<i>Education/Daycare</i>		1
	<i>Healthcare/Hospitals</i>		1
	<i>Recording Studios</i>		0
Archaeology and Cultural Heritage	<i>RPS Fingal</i>	100m (Tunnel sections)	0
	<i>RPS DCC</i>		79

Chapter	Receptor Type	Study Area	Additional Receptors within Full LoD
	<i>NIAH</i>	250m (Tunnel sections outside Dublin City)	73
	<i>National Monuments</i>		2
	<i>RPS Fingal</i>		0
	<i>RPS DCC</i>		N/A
	<i>NIAH</i>		0
	<i>National Monuments</i>		0
Architectural Heritage	<i>RPS Fingal</i>	50m	0
	<i>RPS DCC</i>		86
	<i>NIAH</i>		71
	<i>National Monuments</i>		0