



DUBLIN REPLACEMENT UNDERGROUND CABLE PROGRAMME

Route Options Assessment – CP1100 Finglas to North Wall

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1 INTRODUCTION

1.1 The Project

Dublin's electricity infrastructure is ageing and reaching its end of life. Work must be done to transform and modernise the city's electricity infrastructure, so Dublin can continue to develop and thrive, while increasingly using power from renewable sources.

The Dublin Replacement Underground Cable Programme is a critical programme that will strengthen key electricity infrastructure in Dublin and the surrounding areas, making the city 'renewable ready.' This programme is set to replace and upgrade five 220kV circuits across Dublin city and the surrounding areas.



Figure 1-1: Existing 220kV circuits in Dublin, with the study area shown in pink

The 220kV circuits which are to be replaced are identified in Figure 1-1 and detailed in Table 1-1.

Table 1-1: Dublin Replacement Cable Projects in the Dublin Area

Project Name	Existing Circuit Route Length
CP1146 Carrickmines - Poolbeg	11.9 km
CP1150 Inchicore – Poolbeg	14.5 km
CP1157 Inchicore – Poolbeg	14.5 km
CP1216 North Wall – Poolbeg	4.6 km
CP1100 Finglas – North Wall	11.3 km

EirGrid proposes to replace all the existing circuits with cross-linked polyethylene (XLPE) cable primarily on an offline route, to minimize power outages on the existing circuits. These XLPE cables are more efficient and robust, which will enable the grid to carry more power.

Replacing the existing circuits in an offline route means the new circuit follows a separate route to the existing circuit. The advantage of this is that there are minimal disruptions to the existing circuit and no, or very few, planned outages would be needed during construction.

The alternative to this is online replacement where the new circuit follows the existing circuit route. The old circuit is decommissioned as the new circuit is laid. For this method, a circuit outage of the existing circuit would be required for the entire construction period.

Due to the electricity needs of Dublin, an online replacement is not feasible. For this reason, offline installation will be considered for the replacement of this circuit.

1.2 Purpose of this Report

The Dublin Replacement Underground Cable Programme is following EirGrid’s Framework for Grid Development, which is an end-to-end process for all EirGrid’s grid development projects. The framework takes projects from their conception - the identification of a need to develop the electricity transmission grid - to their eventual construction and subsequent energisation. The framework is explained in EirGrid’s “Have your Say” document and is illustrated in Figure 1-2.

This approach facilitates engagement and consultation with stakeholders and the public which helps to explore options fully and make more informed decisions. Previous studies by EirGrid have brought the Dublin Replacement Underground Cable Programme through Steps 1, 2 and 3 of their Framework for Grid Development and the project is currently at Step 4. It is noted that as the project progresses through to Step 5, there is a possibility that the replacement of underground electricity transmission cables may be classified as exempted development, meaning planning permission is not required. This is subject to the specific assessment of the project including and meeting specific criteria including environmental and ecological criteria.

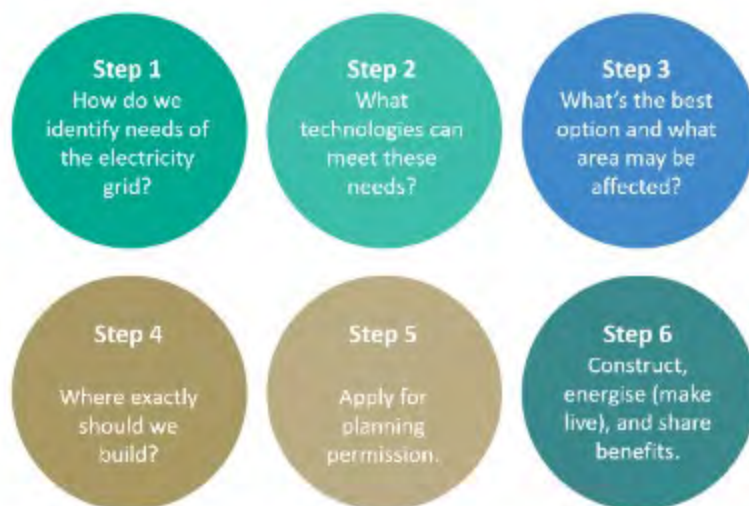


Figure 1-2: EirGrid's Six-Step Framework for Grid Development

As part of Step 4, eight route options, to replace the existing Finglas – North Wall 220kV circuit, were developed. To assist in the assessment the route options were broken down into smaller sections. The sections were then assessed using EirGrid’s five multi-criteria assessment categories, as shown in Figure 1-3.



Figure 1-3: EirGrid's Five Multi-Criteria Assessment Categories

This Route Options Assessment report describes all the potential route options, the methodology used to identify these route options, and how the route options were broken down into sections. This report presents the assessment according to the five categories listed above and how the best performing sections are used to build optimised routes. From these routes, the Emerging Best Performing Routes are selected to progress and develop further.

To aid in the final selection of a Best Performing Route, site investigation will be undertaken, to supplement the desk based investigations carried out to date. There are two types of site investigations proposed: non-invasive and invasive investigations.

Non-invasive investigations are performed to gain an accurate representation of the above and below ground environments and include:

- Surveys of the landscape
- Inspecting manholes and chambers
- Using sonic and radar devices with cat and genny and ground penetrating radar (GPR) and other geophysical methods.

Invasive investigations will be conducted to confirm the location of below ground services where non-invasive methods are unsuccessful and where ground conditions are important. This involves slit trenching and H trenching, trial pitting and ground sampling using boreholes.

- Slit trenches are long narrow trenches used to identify and confirm the position of existing underground utilities. H trenches are H-shaped trenches performed where Joint Bays are proposed.
- At sites where trenchless methods such as Horizontal Directional Drilling (HDD) is proposed to cross existing services, infrastructure or natural features, borehole may be needed to analyse soil and ground conditions to inform the feasibility and detailed design of the crossing.

2 METHODOLOGY AND APPROACH

2.1 Introduction

The purpose of this report is to assess the various route options and determine the Emerging Best Performing Route Option to develop further in the Best Performing Option Report and through Step 5 to completion. This section outlines the methodology applied to achieve this.

Initial route options were identified using high-level considerations as listed below, in Chapter 2.2, following the identification of constraints within the study area. The constraints identified in the study area were primarily based on a review of publicly available datasets, as well as route walkover surveys.

The data sources include but are not limited to the following:

- Development Plans – Fingal County Council and Dublin City Council
- Myplan.ie Mapping
- Central Statistics Office, CSO
- National Parks and Wildlife Services, NPWS
- Irish Ramsar Wetland Committee
- Environmental Protection Area (EPA) mapping
- Geological Survey Ireland, GSI
- National Monuments Service
- Heritage Mapping
- Corine 2018 and 2012 data (sourced from the EPA). This dataset was used with aerial imagery and supplemented with datasets obtained directly from other sources covering the Dublin area, to determine land use.
- Digital terrain mapping was sourced by EirGrid from the Ordnance Survey Ireland (OSI) for the study area. An orthographical map of the study area, sourced from OSI, was also reviewed.
- Information from local authorities, asset owners and utility providers.

To help minimise disruption and work as efficiently as possible, this project will coordinate with other state-owned utilities, transport providers and local authorities through the Dublin Infrastructure Forum (DIF). The forum meets quarterly.

The DIF has also setup three working groups at operational level:

- Stakeholder engagement and communications;
- Technical expertise; and
- Planning and environment.

While the initial focus of the work of the DIF has been on the **Powering Up Dublin** programme, it is intended to work more broadly across other major infrastructure projects being delivered in the area such as water, gas and transport.

2.2 Identification of Route Options

Potential route options for the Finglas to North Wall circuit were identified following the high-level considerations:

- Environmental

- Ecology
- Water bodies
- Social
 - Residential, amenity, commercial
 - Archaeology/Cultural heritage
- Economic
 - Land ownership
 - Length of route
- Technical
 - Major obstacles (crossings that may require trenchless techniques)
 - Route geometry (width, straight sections, sharp bends)
- Deliverability
 - Land availability
 - Road access

This led to the identification of eight potential route options, however the route options are not completely unique and there is some overlap between sections on some route options.

2.3 Definition of Sections

To assist with the multi-criteria assessment of each route, and to ensure each section assessed was distinct and no section was duplicated in the assessment, the route options were broken down into sections. These sections ran between two nodes along the route. A node was created wherever two routes crossed or diverted from each other. The sections are labelled according to the nodes they run between, for example the section running between Node A and Node B was labelled Section A-B.

2.4 Route Building

The advantage of breaking up the route options into smaller sections as described in Chapter 2.3 above is that these sections can then be combined in new ways to build an optimised route. This methodology grants a lot more freedom to build the best possible route, using sections that rank the best during the multi-criteria assessment.

This also allows certain constraints to be avoided more easily, by selecting alternative sections that bypass the constraint.

Each section was assessed using the multi-criteria assessment outlined in Chapter 2.5.

2.5 Criteria Used for Comparison of Options

The route sections were assessed using EirGrid's five multi-criteria assessment categories. These are as follows:

- Technical
- Deliverability
- Economic
- Socio-Economic
- Environmental

The categories were further divided into subcategories which are described below. For each subcategory, the section was ranked according to the colour scale shown in Table 2-1.

Table 2-1: Colour coding of Risk / Significance / Sensitivity levels

Colour Key	Level of Risk / Significance / Sensitivity
Yellow	Low
Green	Low-Moderate
Dark Green	Mid-Level / Moderate
Blue	Moderate-High
Dark Blue	High

2.5.1 Technical

Table 2-2: Technical Subcategories for the Multi-Criteria Assessment

Subcategory	Description
Technical Operating Risk	Will the route lead to areas which are difficult to access to complete maintenance activities, examples include access to railways, motorways, fast lanes of major roads, etc.
Compliance with EirGrid Functional Specification for 220kV	Considers the limitations imposed by the specification in terms of routing with existing roadways, cable rating
Expansion/Extendibility	Considers the possibility of future extension of the network (would also consider the impact of the use of a particular route on future advised EirGrid routes).
Geotechnical conditions	Considers the impact of known ground conditions (from GSI data or other available datasets), this would include depth to bedrock, likely water table depth, known areas of poor ground / marsh.

2.5.2 Deliverability

Table 2-3: Deliverability Subcategories for the Multi-Criteria Assessment

Subcategory	Description
Road Access	Road access to the sites to be considered, specifically the ability to deliver plant and cable to a site (low bridges, narrow roads, load limits on roads/bridges)
Outage Impact	This item considers the requirement to deenergise existing cables to construct the new circuits.
Route Geometry	The number of acute bends or overall “bendiness” of a particular route should be considered against other routes Topography, topology etc.
Land Availability	Land availability for the construction of the circuit and specifically the joint bays and working space during cable pulling
Planning and other statutory requirements	Considers the requirement for planning, foreshore licenses or other statutory requirements
Material Assets	Considers the impact of the route on existing EirGrid assets. Number of crossings of canals, motorway, Luas, DART and feasibility of these, major utility infrastructure.
Utility Congestion	Considers the extent of existing utilities based on available datasets (risk of inaccuracy of existing datasets to be noted)
Working Time Constraints	Considers the working time restrictions which will apply to the route, this data will most likely come from the Traffic Impact Number, however other

Subcategory	Description
	sources may be considered (work in residential areas, at sports grounds etc.)
Reinstatement Requirements	Considers the technical / time impact of reinstatement on the proposed route, has the road been recently resurfaced, is the road of concrete construction are there special paving or surface treatments in place which will need to be reinstated
Dependence on other projects	Considers the likely interface, both positive and negative on the cable routes (Metro North and others)

2.5.3 Economic

Table 2-4: Economic Subcategories for the Multi-Criteria Assessment

Subcategory	Description
Length of Route	Comparison of route length against a baseline of the existing route length.
Number of Crossings	Quantity of non-standard crossings, HDD, Microtunnel, River Crossing etc.
Reinstatement Costs	Considers the cost impact of reinstatement on the proposed route, has the road been recently resurfaced, is the road of concrete construction are there special paving or surface treatments in place which will need to be reinstated
Utility Diversion Requirements	Considers the requirement to arrange for the diversion of known utilities to prevent a clash or to open a circuit corridor. This would be for significant utilities such as high-pressure gas mains etc.
Bespoke Circuit Trench Requirements	Sections where non-standard trenches cannot be achieved – e.g., Bridge deck crossings or similar.

2.5.4 Socio-Economic

Table 2-5: Socio-Economic Subcategories for the Multi-Criteria Assessment

Subcategory	Description
Cultural heritage	Considers the potential impact / proximity to areas (and specific points) of Cultural Heritage.
Proximity to critical services	Services that will have a critical socio-economic impact if affected (i.e., business parks, schools, smaller healthcare centres, etc)
Duration of the works	The overall duration of the works in a particular area should be considered, however it should be noted that some low impact routes may have long durations whilst some high impact routes may be completed quickly
Settlements and Communities	Proximity to buildings and residences, specifically the number of buildings within a 50m buffer of the route
Amenity	Impact on recreational activities (e.g., fishing, sports) and tourism during and after construction, that are not included in the other sub-criteria.
Traffic and Transport	Considers the impact of the route on traffic, specifically on bus routes, on-street parking and cycle lanes. When the route has been selected, it is important to note that a full Traffic Management Plan (TMP) will be created and implemented throughout the construction phase of this project. Any openings in the road will comply fully

Subcategory	Description
	with the Guidelines for Managing Openings in Public Roads and will be licenced accordingly.
Emergency services	Considers the impact to Ambulance, Fire Engine and Garda dispatch points / depots as well as to Emergency Hospitals / ERs

2.5.5 Environmental

Table 2-6: Environmental Subcategories for the Multi-Criteria Assessment

Subcategory	Description
Planning policy and land use	Considers if the project is allowable under the development plan.
Biodiversity, Flora and Fauna	Considers the possible impact of the selected route on biodiversity – based on the significance from constraints mapping
Landscape and Visual	Considers the impact of the route on landscape – based on the significance from constraints mapping.
Contaminated land	Considers the risk of encountering and dealing with the impacts of contaminated ground. Based on constraints mapping and known areas of contamination such as landfills, historic landfills etc.
Flood risk	Considers the risk of flooding, this will be most applicable to the construction stage – based on the significance from constraints mapping.
Water Impact	Considers the risk arising from proximity to water bodies – based on the significance from constraints mapping. Number of crossings, proximity of circuits etc.
Probability of triggering NIS requirements	Considers the risk of a particular route or section of a route triggering an NIS, in particular proximity to a Natura 2000 site (or pathway link) or similar.

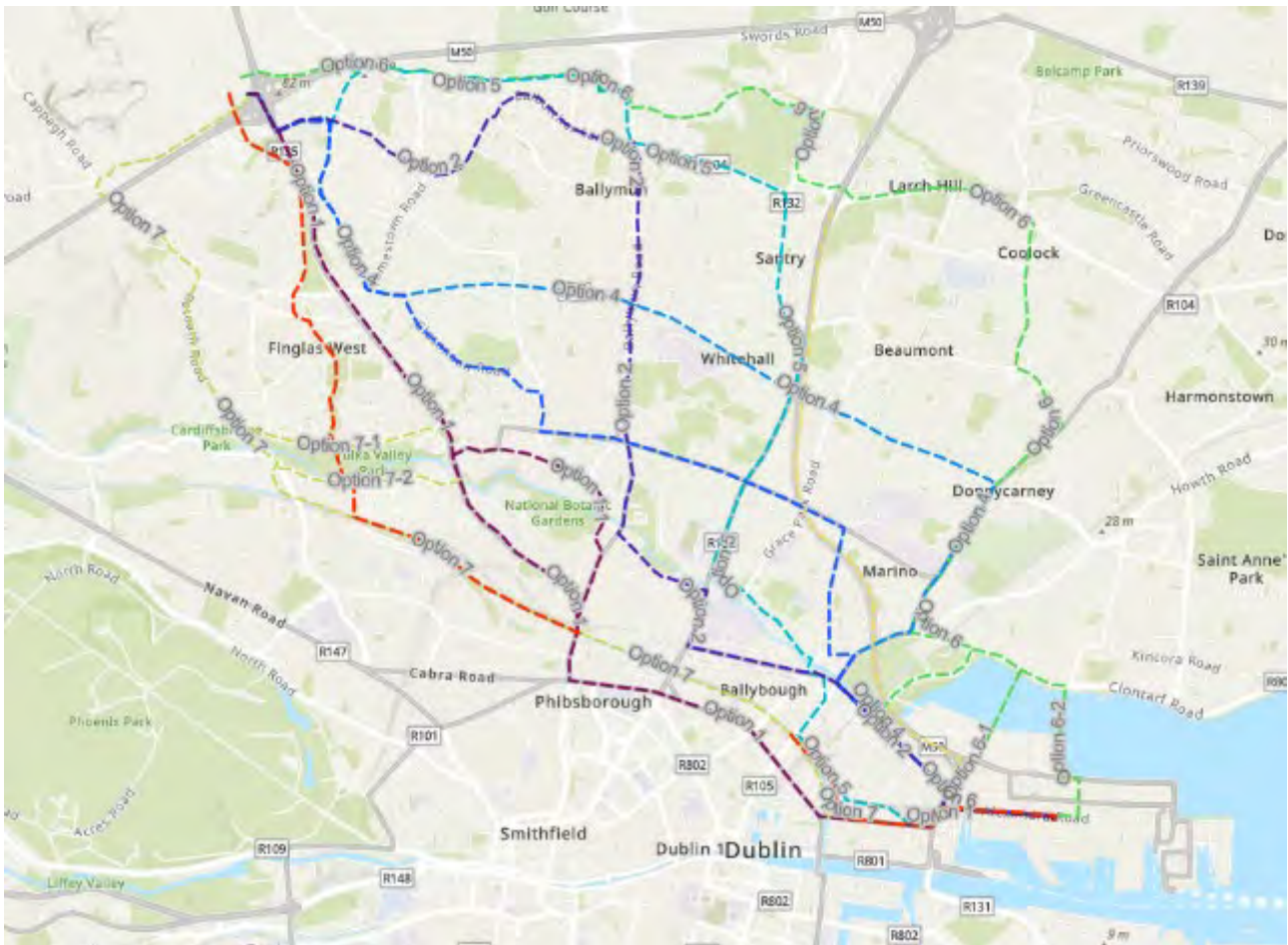


Figure 3-2: All route options developed in the Finglas to North Wall study area

Individual route options are described and shown in Chapters 3.2.1 to 3.2.9.

3.2.1 Route Option 1

Route option 1 commences at the Finglas substation and crosses under the M50 using the service tunnels at the M50/R135 junction. The route travels south along North Road, Finglas Bypass and Finglas Road. On Finglas Road the route crosses the Tolka River.

The route follows Phibsborough Road across the Royal Canal to North Circular Road, where it follows North Circular Road west towards Portland Row. The route follows this road to where it becomes Seville Place, where it travels under the elevated rail crossing.

The route turns onto Sheriff Street Upper and crosses Spencer Bridge. At the junction with East Wall Road, the route turns north onto East Wall Road and then east onto Alexandra Road as far as the North Wall substation.

There is an alternative section on this route which is described below.

- Route 1-1

This route turns off Route 1 at the Finglas Road and Old Finglas Road junction. It follows Old Finglas Road onto Glasnevin Hill Road. At the junction with St Mobhi Drive, the route follows this road as it becomes Botanic Road, where it re-joins with Route 1.

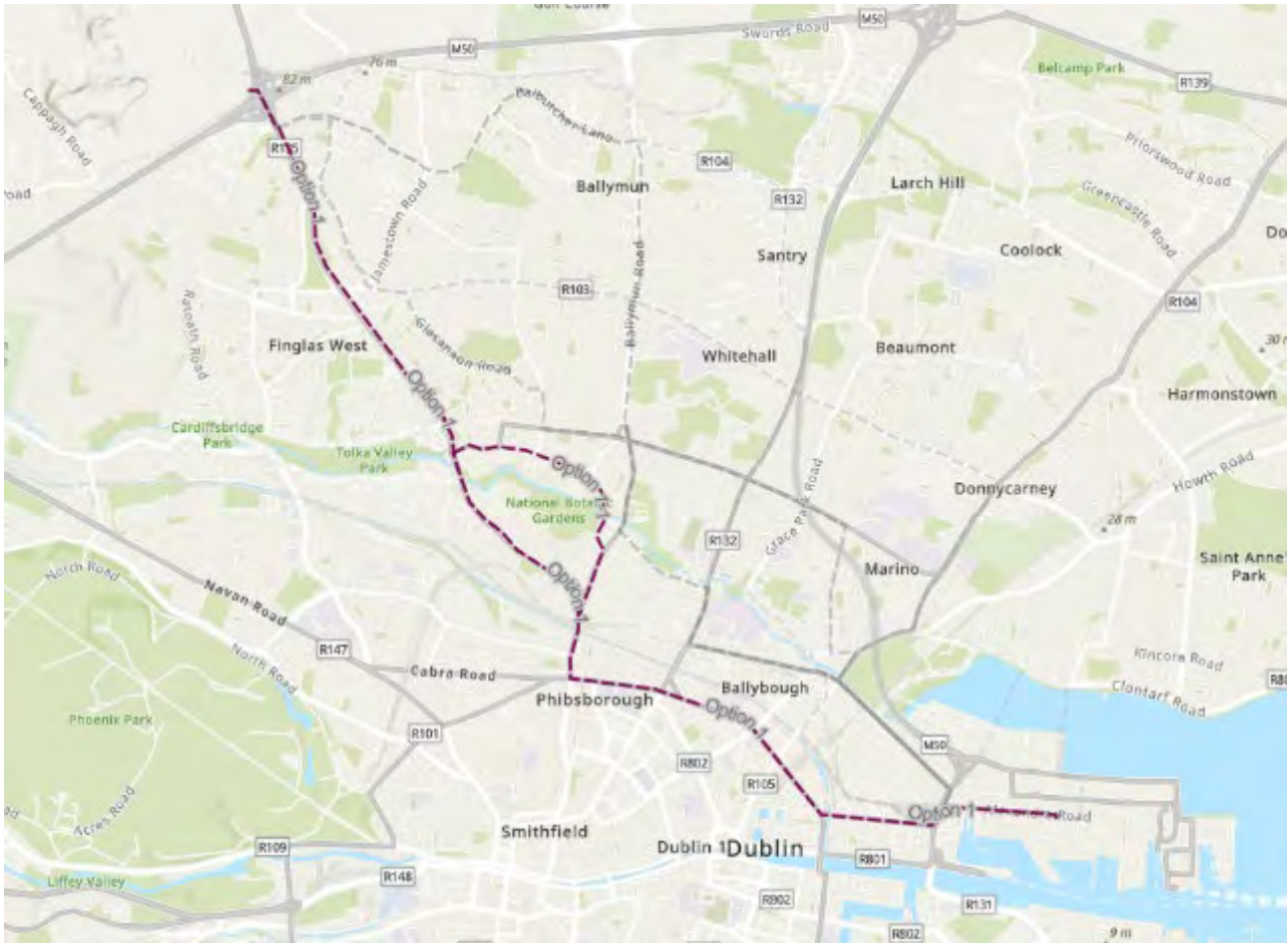


Figure 3-3: Finglas to North Wall - Route Option 1

3.2.2 Route Option 2

Route option 2 commences at the Finglas substation and crosses under the M50 using the service tunnels at the M50/R135 junction. The route travels east along Charlestown Place, Melville Road, Poppintree Park Lane and Balbutcher Lane. At the junction with the R108 (Ballymun Road), the route travels south on the R108.

After crossing the Tolka River, the route turns onto Botanic Avenue and follows this road to the junction with the R132 (Drumcondra Road Lower) where it turns south until it reaches the R131. The route follows the R131 (Clonliffe Road, Poplar Row and East Wall Road) until it reaches Alexandra Road. Here the route turns east and follows this road as far as the North Wall substation.

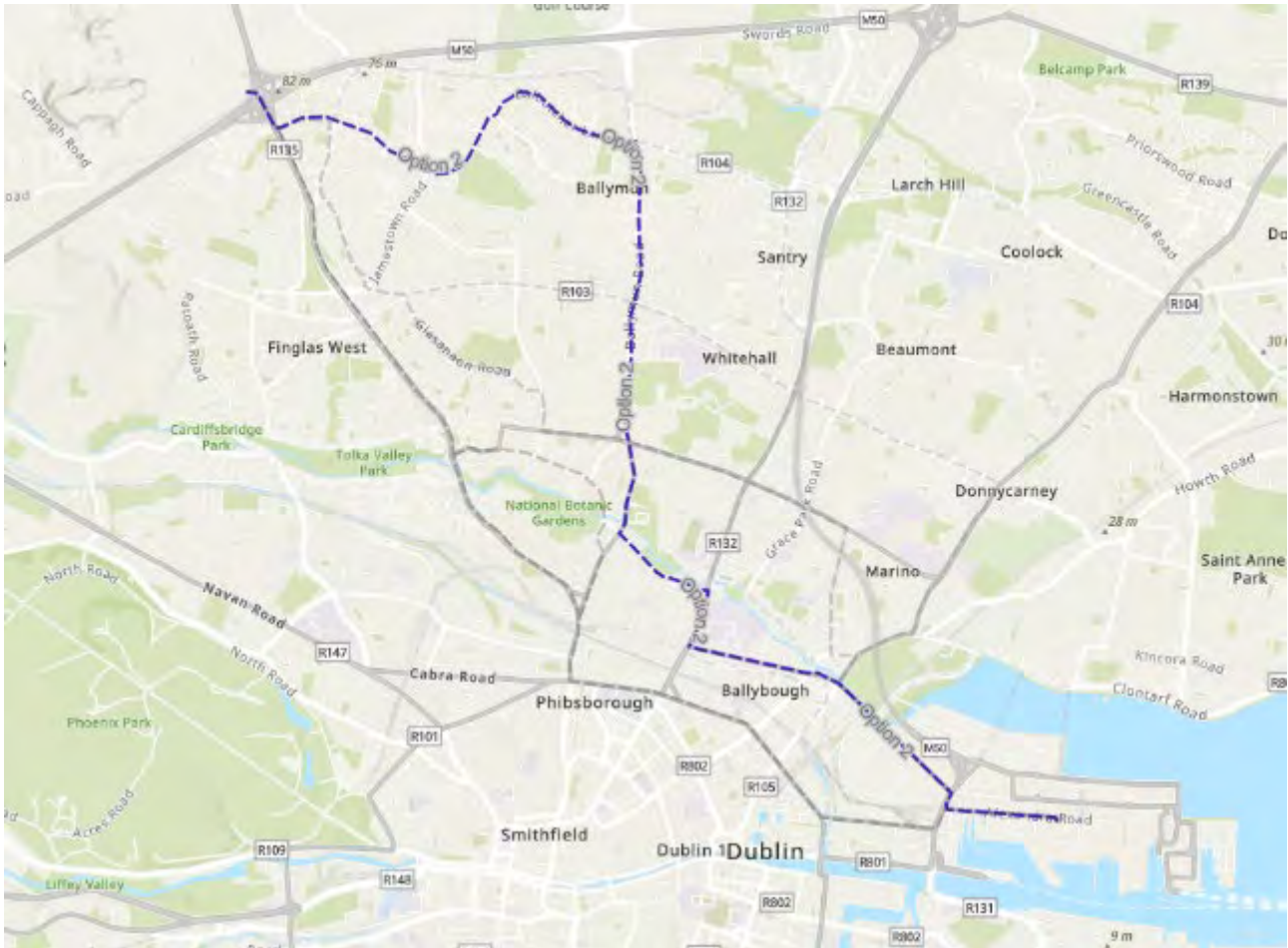


Figure 3-4 Finglas to North Wall - Route Option 2

3.2.3 Route Option 3

Route option 3 commences at the Finglas substation and crosses under the M50 using the service tunnels at the M50/R135 junction. The route travels east along Charlestown Place, to the junction with the R104. The route follows the R104 (St Margaret’s Road) and onto McKee Avenue. At the junction with the R103 (Seamus Ennis Road), the route travel east to Glasanaon Road. The route follows Glasanaon Road to Ballygall Road East.

The route travels along R102 (Griffith Avenue) to the junction with Philipsburgh Avenue, where it turns south along this road. The route travels past Fairview Park on Fairview and the R105. The route crosses the Tolka River using Annesley Bridge Road.

At the junction with East Wall Road, the route follows East Wall Road and then turns east onto Alexandra Road as far as the North Wall substation.

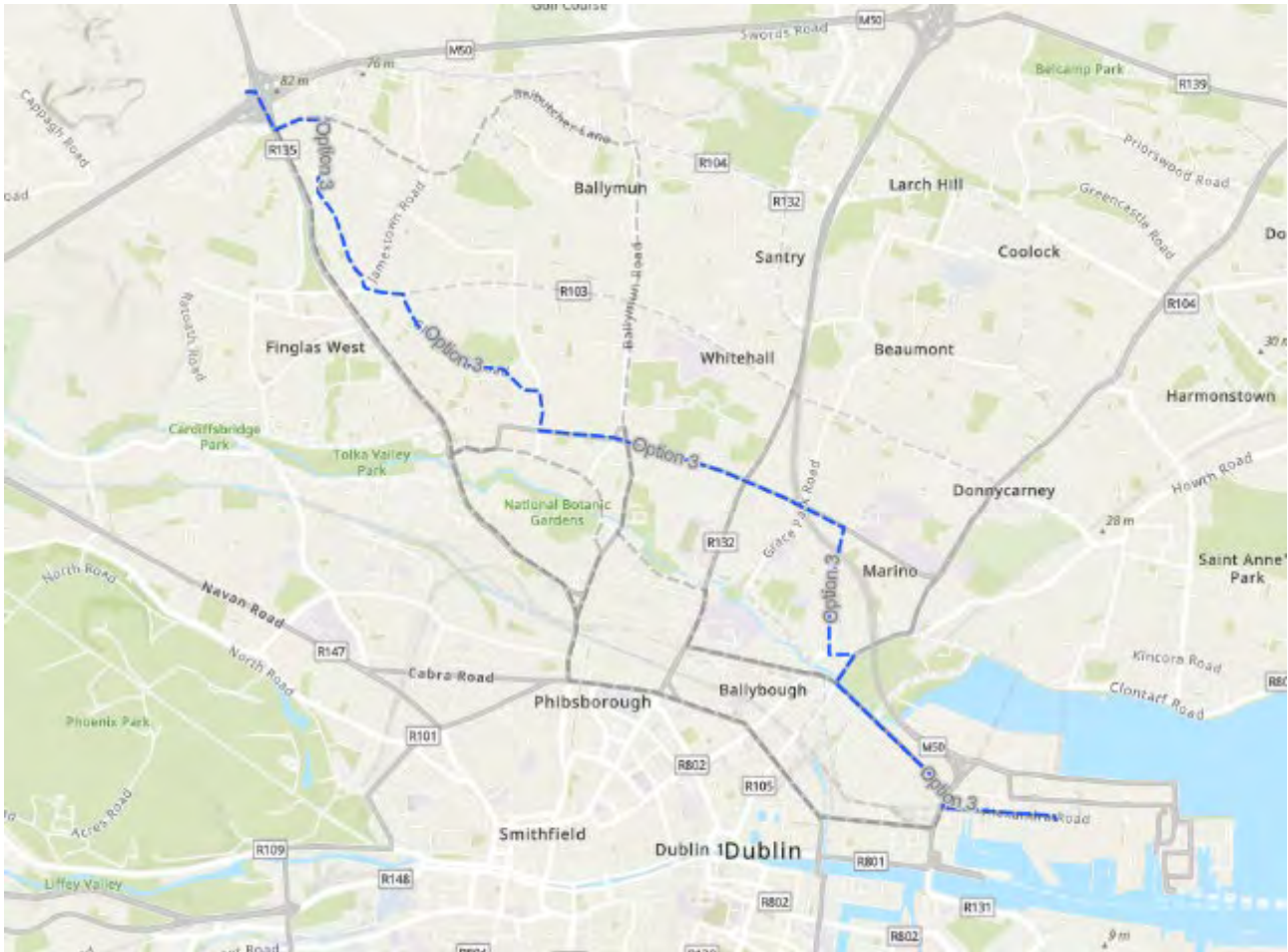


Figure 3-5 Finglas to North Wall - Route Option 3

3.2.4 Route Option 4

Route option 4 commences at the Finglas substation and crosses under the M50 using the service tunnels at the M50/R135 junction. The route travels east along Charlestown Place, to the junction with the R104. The route follows the R104 (St Margaret’s Road) and onto McKee Avenue. At the junction with the R103 (Seamus Ennis Road), the route travel east as the road becomes Ballygall Road West, Glasnevin Avenue and Collins Avenue.

At the junction with the R107 (Malahide Road), the route follows the R107 south. The route travels past Fairview Park on the R105 (Fairview Road). The route crosses the Tolka River using Annesley Bridge Road.

At the junction with East Wall Road, the route follows East Wall Road and then turns east onto Alexandra Road as far as the North Wall substation.

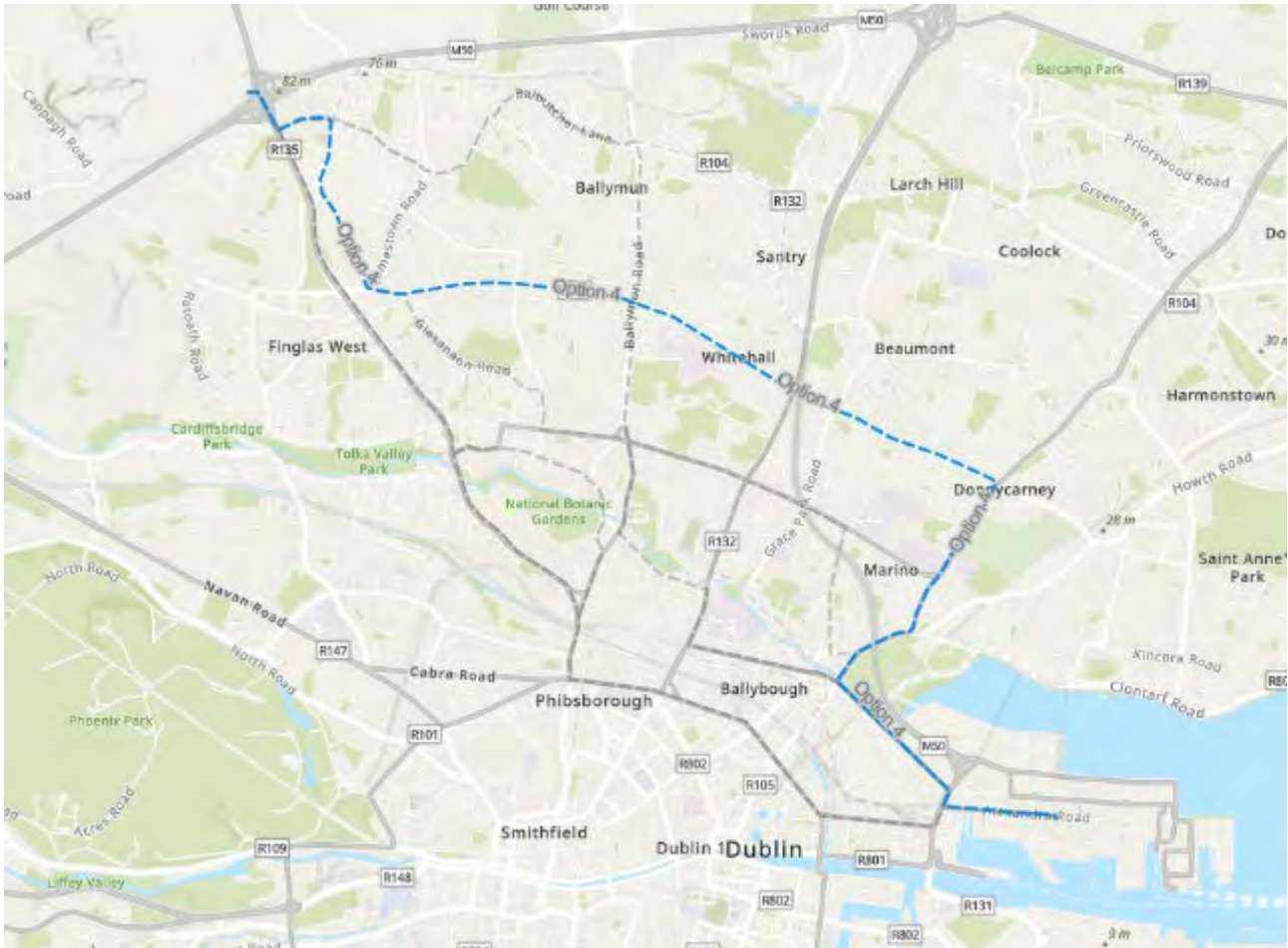


Figure 3-6 Finglas to North Wall - Route Option 4

3.2.5 Route Option 5

Route option 5 commences at the Finglas substation and crosses under the M50 using the service tunnels at the M50/R135 junction. The route travels east along Charlestown Place, to the junction with the R104. The route follows the R104 northwards (St Margaret’s Road) to the junction with the R108 (Ballymun Road). The route follows the R108 south and then turns eastwards onto the R104 (Santry Avenue).

The route passes Santry Park and at the junction with Swords Road, the route follows this road south as it becomes the N2. Before the Tolka River, the route turns onto Richmond Road. The route then crosses the Tolka River on the R803 (Ballybough Road).

The route turns onto the R131 (Poplar Row) and then south onto Annesley Place until it reaches the R105 (North Strand Road). Before the Royal Canal, the route turns onto Ossory Road. At the corner of Ossory Road, the route enters Irish Rail land. The route exits Irish Rail land onto the R101 (Sheriff Street Upper). At the junction with the R131 (East Wall Road), the route turns north onto East Wall Road and then east onto Alexandra Road as far as the North Wall substation.

route follows 2 North Road Extension and 2 Branch Road North to Alexandra Road, where it travels west towards the North Wall substation.

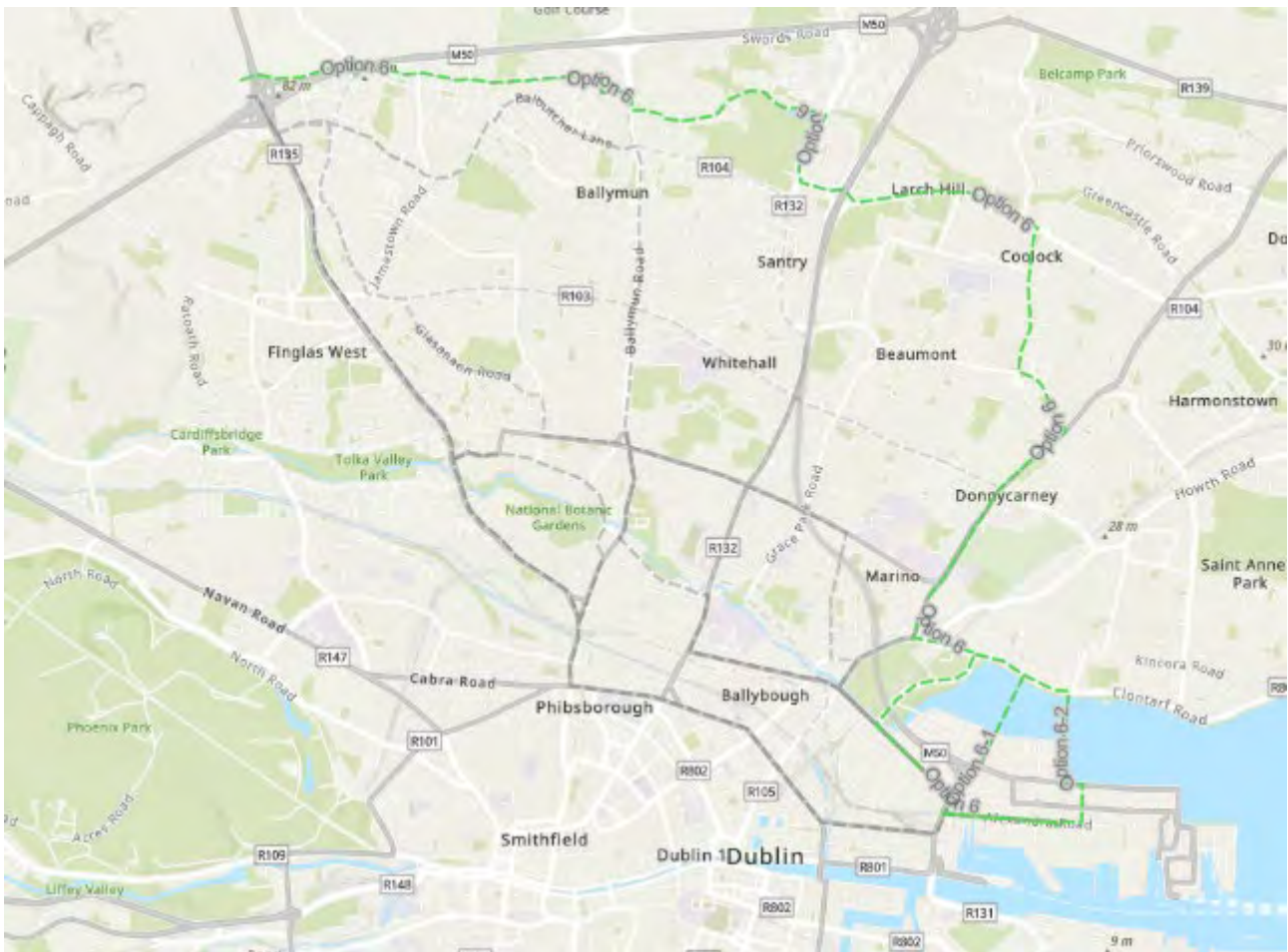


Figure 3-8: Finglas to North Wall - Route Option 6

3.2.7 Route Option 7

Route option 7 commences at the Finglas substation. It travels off road towards Cappagh parallel to the M50. On reaching Cappagh Road, the route follows this road south as it becomes Ratoath Road. The route follows Ratoath Road to the Royal Canal and then travels on Royal Canal Way under Ratoath Road bridge.

The route travels along Royal Canal Way, passing under the rail lines after Broombridge Station and over the rail lines travelling towards the Phoenix Park tunnel. The route crosses the Royal Canal on the N1 bridge to the southern side of the Royal Canal. The route runs under two overhead walkways that access Croke Park.

The route follows the Royal Canal greenway to Sheriff Street Upper, where it crosses Spencer Bridge. At the junction with East Wall Road, the route turns north onto East Wall Road and then east onto Alexandra Road as far as the North Wall substation.

There are two alternative sections on this route described below:

- Route 7-1 Tolka Valley Road
This section turns off Ratoath Road onto Tolka Valley Road. At the end of Tolka Valley Road, the section joins with Route 1 on the R135.
- Route 7-1 Ballyboggan Road
This section turns off Ratoath Road onto Ballyboggan Road. At the end of Ballyboggan Road, the section joins with Route 1 on the R135.

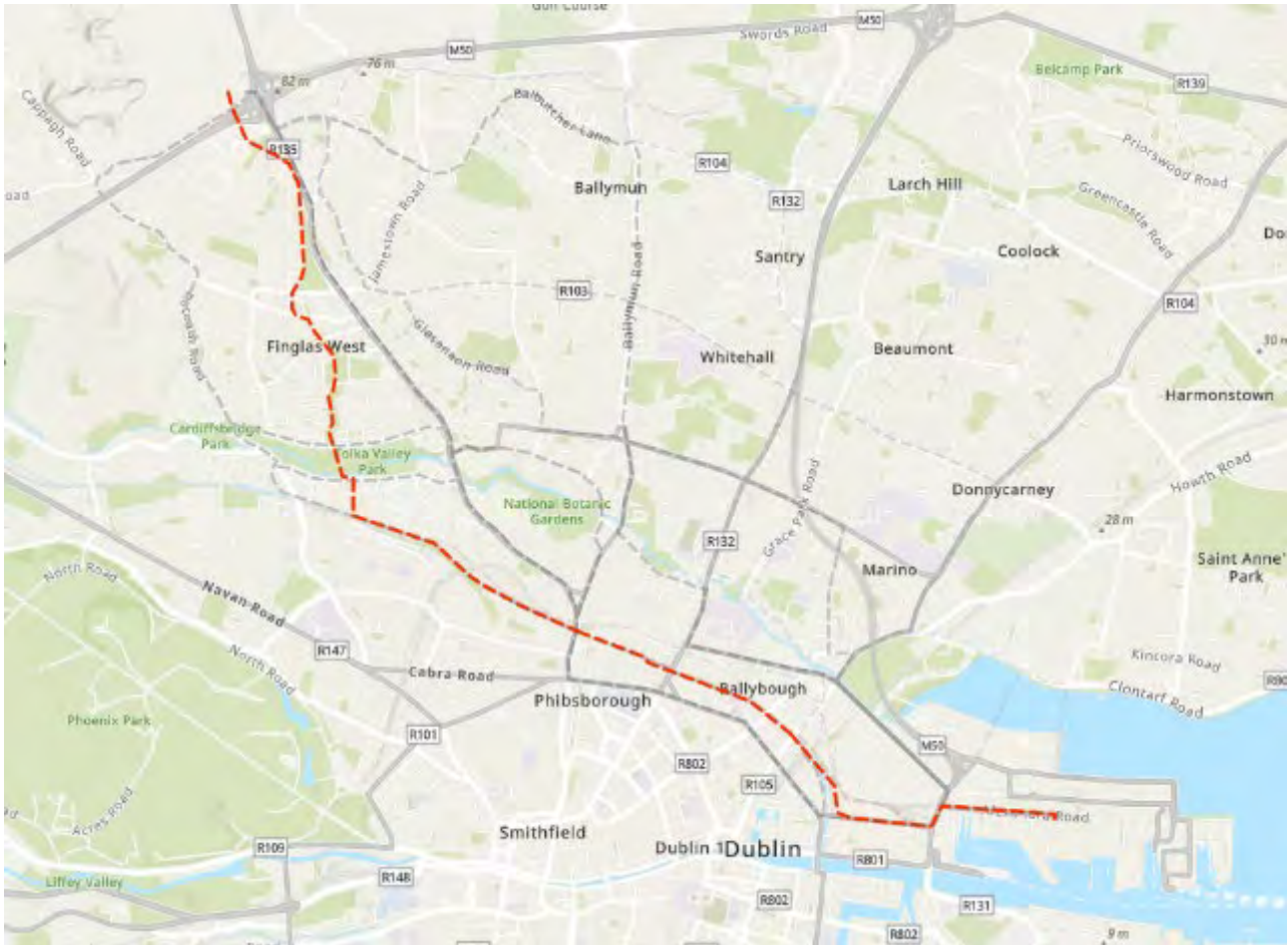


Figure 3-10: Finglas to North Wall –Route Option 8

3.2.9 M50 Tunnel Route Option

In addition to the eight identified route options, the M50 tunnel was investigated as a route option which could form part of either route option 5 or 6. This route option considers the M50 tunnel from Santry to East Wall Road.

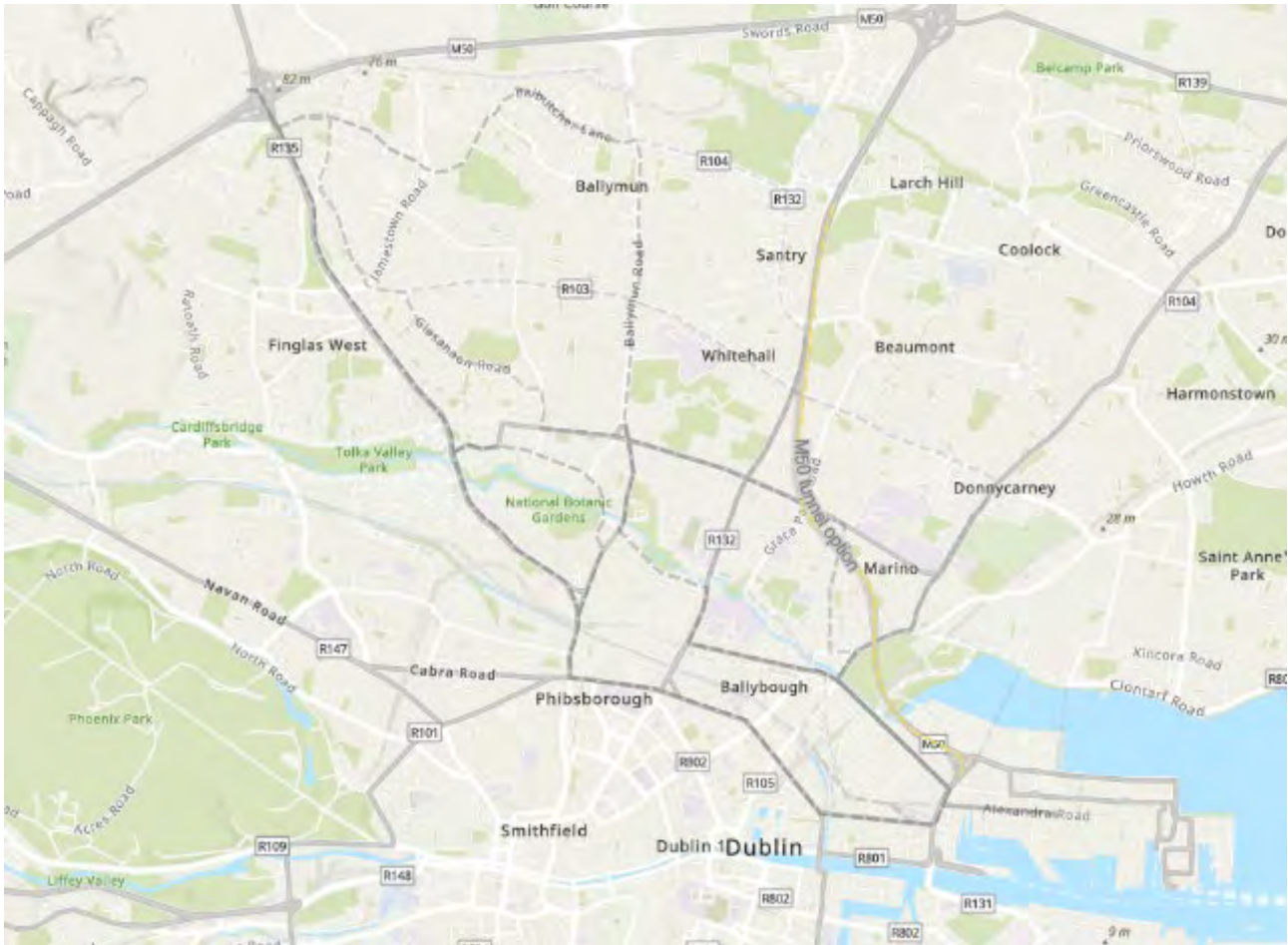


Figure 3-11: Finglas to North Wall – M50 Tunnel Route Option

3.3 Identification of Sections and Nodes

Nodes were identified wherever two or more route options crossed or diverged. The sections were labelled according to the nodes they run between, for example the section between Node A and Node B was called Section A-B.

A map of the identified nodes for all route options is shown in Figure 3-11.



Figure 3-12: Node Map for Finglas to North Wall route options

During the multi-criteria assessment, some sections were split further to ensure the sections were small enough to assess in enough detail for the multi-criteria assessment. Section N-V was further split into three sections and section A-G was divided into two parts. Additionally, during the multi-criteria assessment, two nodes were added (AN and AO) with a new section, Section AN-AO linking them, that did not make up any of the existing route options.

The table below lists all Sections, which route options they form part of and which roads or areas the sections run through.

Table 3-1: All Sections assessed in the Finglas - North Wall study area

Section	Opt. 1	Opt. 2	Opt. 3	Opt. 4	Opt. 5	Opt. 6	Opt. 7	Opt. 8	M50 tunnel	Section Length (km)	Road Names
A-B	x	x	x	x	x					0.4	Service tunnels under M50; N2
B-H	x									2.9	North Road; Finglas Bypass; Finglas Rd
H-I	x									0.3	Finglas Rd
I-L	x									0.2	Finglas Rd
L-R	x									1.8	Finglas Rd
I-R	x									2.5	Old Finglas Rd; Glasnevin Hill; Botanic Rd
R-S	x									0.1	Prospect Road

Section	Opt. 1	Opt. 2	Opt. 3	Opt. 4	Opt. 5	Opt. 6	Opt. 7	Opt. 8	M50 tunnel	Section Length (km)	Road Names
S-AG	x									3	Phibsborough Rd; North Circular Rd; Portland Row; Seville Pl
AG-AH	x						x			0.4	Sheriff Street Upper
AH-AJ	x				x		x	x		0.8	Sheriff Street Upper; East Wall Rd
AJ-AK	x	x	x	x	x	x	x	x		1	Alexandra Rd
B-C		x	x	x	x					0.5	Charlestown Pl
C-O		x								3.1	Melville Rd; Poppintree Park Lane; Balbutcher Lane
O-P		x								1.4	Ballymun Rd
P-Q		x								1.2	Ballymun Rd
Q-W		x								3.2	St Mobhi Rd; Botanic Ave; Drumcondra Rd Lower; Clonliffe Rd
W-X		x			x					0.2	Poplar Row
X-AC		x								0.1	Poplar Row
AC-AD		x	x	x						0.5	East Wall Rd
AD-AI		x	x	x		x				0.9	East Wall Rd
AI-AJ		x	x	x		x				0.2	East Wall Rd
C-E			x	x						1.9	St Margaret's Rd; McKee Ave; Seamus Ennis Rd
E-Q			x							2.6	Glasanaon Rd; Fitzmaurice Rd; Ballygall Rd E; Griffith Ave
Q-U			x							1	Griffith Ave
U-AN										0.9	Griffith Ave
AN-AO										0.9	Griffith Ave
U-Y			x							2.2	Griffith Ave; Philipsburgh Ave; Fairview Strand
Y-AC			x	x						0.3	Annesley Bridge Rd
E-P				x						1.9	Ballygall Rd W; Glasnevin Ave
P-T				x						1.5	Collins Ave Ext; Collins Ave W
T-V				x						1.9	Collins Ave
V-Z				x		x				1.4	Malahide Road
Z-Y				x						0.5	Marino Mart; Fairview
C-D					x					0.4	St Margaret's Rd
D-N					x	x				2.6	St Margaret's Rd
N-O					x					0.3	Ballymun Rd
O-T					x					3.1	Santry Ave; Swords Rd
T-U					x					0.8	Swords Rd; Drumcondra Rd Lower
U-W					x					2.1	Drumcondra Rd Lower; Richmond Rd; Luke Kelly Bridge
X-AF					x					1.2	Annesley Pl; N Strand Rd; Ossory Rd; Irish Rail land
AF-AH					x			x		0.6	Dock Rd
A-D						x				1.1	Private land; R122

Section	Opt. 1	Opt. 2	Opt. 3	Opt. 4	Opt. 5	Opt. 6	Opt. 7	Opt. 8	M50 tunnel	Section Length (km)	Road Names
N-AL						x				2.4	Northwood Ave; Swords Rd
AL-AM						x				2.1	Coolock Ln; Oscar Traynor Rd
AM-V						x				2.6	Kilmore Rd; Malahide Rd
Z-AA						x				0.5	Clontarf Rd
AA-AD						x				1.1	Alfie Byrne Rd
AA-AB						x				0.5	Clontarf Rd
AB-AI						x				1.2	Clontarf Rd; Estuary Crossing; Bond Rd; Promenade Rd
AB-AK						x				1.9	Clontarf Rd; Estuary Crossing; Off Rd; 2 Branch Rd N; Alexandra Rd
A-F							x			4.1	Private land; Cappagh Rd; Ratoath Rd
F-G							x			0.9	Tolka Valley Rd
G-H							x			1	Tolka Valley Rd
F-J							x			0.6	Ratoath Rd
J-K							x			0.7	Ballyboggan Rd
K-L							x			0.9	Ballyboggan Rd
J-M							x			0.9	Ballyboggan Rd; Hamilton View; Royal Canal Greenway
M-S							x	x		2.1	Royal Canal Greenway
S-AE							x	x		2.4	Royal Canal Greenway
AE-AG							x			0.5	Royal Canal Greenway
A-AP								x		0.8	M50 crossing; North Park; Off Rd; Casement Rd
AP-G								x		2.6	Casement Rd; Cardiff Castle Rd; Finglaswood Rd; Cappagh Rd; Patrickswell Pl; Off Road
G-K								x		0.4	Off Road (Tolka Valley Park)
K-M								x		0.3	Broombridge Rd
AE-AF								x		0.4	Royal Canal Greenway; Royal Canal crossing onto Irish Rail Land
M50 tunnel									x	5.3	M50

4 SECTION LEVEL ASSESSMENT

4.1 Section Level Multi-Criteria Assessment

Each route section was assessed according to the methodology described in Chapter 2. A summary of this assessment can be found in Table 4-1, the main risk factors have been highlighted in this table.

Table 4-1: Summary of section assessments

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
A-B	0.4	Service tunnels under M50; N2	The section through the service tunnels under the M50 may complicate maintenance and constrain future expansion.	Access is constrained in the service tunnels and the section is 100% parallel to the existing circuit.	There is moderate utility congestion along this section and bespoke trench design may be required.	No socio-economic issues on this section.	No environmental issues on this section.
B-H	2.9	North Road; Finglas Bypass; Finglas Rd	There is a medium flood risk along 50% of this section.	100% of this section is dual carriageway. The existing circuit is parallel to 25% of this section.	There is a mix of high and moderate utility congestion along this section. There are four major junctions on this section.	This section passes three SMR buffers. This section passes a fire station and the following critical services: Finglas Village Centre, and a medical centre	There is a medium flood risk along 50% of this section.
H-I	0.3	Finglas Rd	There is a medium flood risk along 100% of this section.	100% of this section is dual carriageway. This section is completely offline.	There is high utility congestion along this section. There is one major junctions on this section.	This section passes no cultural heritage sites, emergency or critical services.	There are mature trees adjacent to the road for 65% of the section. There is a medium flood risk along 100% of this section.
I-L	0.2	Finglas Rd	The section passes over the Tolka River. Crossing at this point may constrain future expansion. There is a medium flood risk along 100% of this section.	100% of this section is dual carriageway. This section is completely offline.	There is high utility congestion along this section. There is one major crossing of the Tolka river on this section.	This section passes two SMR buffers. This section passes the Tolka Valley Park entrance.	There are mature trees adjacent to the road for 50% of the section. The section crosses the Tolka River and there is a medium flood risk along 100% of this section.

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
L-R	1.8	Finglas Rd	There is a medium flood risk along 15% of this section.	40% of this section is dual carriageway and 60% is wide single carriageway. This section is completely offline.	There is high utility congestion along this section. There are two major junctions on this section.	This section passes adjacent to one DCC Architectural Conservation Area. The section passes Glasnevin Cemetery, Dublin Industrial Estate and two schools.	This section passes approximately 90m away from an inland bird feeding site Glasnevin/St. Vincent Primary School. There are also mature trees adjacent to the road for 20% of the section.
I-R	2.5	Old Finglas Rd; Glasnevin Hill; Botanic Rd	There is a medium flood risk along 5% of this section.	100% of this section is wide single carriageway. This section is completely offline.	There is a mix of high and moderate utility congestion along this section. There are two major junctions and a major crossing of the Tolka river on this section.	This section passes two SMR buffers. This section passes one hospital, the National Botanical Gardens and four schools.	This section crosses the Tolka River.
R-S	0.1	Prospect Road	The section passes over the two railway bridges. Crossing at these points may constrain future expansion.	100% of this section is wide single carriageway. This section is completely offline.	There is moderate utility congestion along this section. There are two major crossings of railway bridges on this section.	This section passes over 2 railway bridges and an entrance to the Royal Canal Greenway.	No environmental issues on this section.
S-AG	3	Phibsborough Rd; North Circular Rd; Portland Row; Seville Pl	The section passes over the Royal Canal. Crossing at this point may constrain future expansion. There is a medium flood risk along 5% of this section.	100% of this section is wide single carriageway. This section is completely offline.	There is a mix of high, moderate and low utility congestion along this section. There are six major junctions and a major crossing of the Royal Canal on this section	This section passes through one DCC Architectural Conservation Area and one SMR buffer. The section passes one major hospital, two Garda stations, Mountjoy Prison, Croke Park and various schools and shops.	This section crosses the Royal Canal pNHA and the Royal Canal. There are mature trees next to the road along 25% of the section.
AG-AH	0.4	Sheriff Street Upper	The section crosses over the Royal Canal (lifting bridge so HDD would be necessary). Crossing at this point may constrain future expansion.	This section crosses a lifting bridge and a section of elevated roadway. This section is completely offline.	There is high utility congestion along this section. There is one major crossing of the Royal Canal on this section.	This section passes Dockland Train Station.	This section crosses the Royal Canal pNHA and the Royal Canal.

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
AH-AJ	0.8	Sheriff Street Upper; East Wall Rd	No technical issues on this section.	100% of this section is wide single carriageway. The existing circuit is parallel to 100% of this section.	There is a mix of high, moderate and low utility congestion along this section. There is one major junction on this section	This section passes the parking area for 3Arena.	No environmental issues on this section.
AJ-AK	1	Alexandra Rd	This section may constrain future expansion on Alexandra Road.	100% of this section is wide single carriageway. The existing circuit is parallel to 100% of this section.	There is moderate utility congestion along this section. This section runs parallel to and crosses the railway lines on Alexandra Road and one major junction.	This section runs parallel to and crosses the railway lines on Alexandra Road.	No environmental issues on this section.
B-C	0.5	Charlestown Pl	No technical issues on this section.	100% of this section is dual carriageway. This section is completely offline.	There is low utility congestion along this section. There is one major junction on this section.	This section passes the Charlestown Shopping centre.	No environmental issues on this section.
C-O	3.1	Melville Rd; Poppintree Park Lane; Balbutcher Lane	No technical issues on this section.	100% of this section is a single carriageway. This section is completely offline.	There is a mix of high, and moderate utility congestion along this section. There is one major junction on this section	This section passes Poppintree Industrial Estate, Poppintree Park, St. Joseph's Senior National School and two sports centres.	There are mature trees next to the road along 15% of the section.
O-P	1.4	Ballymun Rd	No technical issues on this section.	100% of this section is dual carriageway. This section is completely offline.	There is moderate utility congestion along this section. There is one major junction on this section.	This section passes one Garda Station. The section also passes one health centre and two education centres.	No environmental issues on this section.
P-Q	1.2	Ballymun Rd	The section passes over the Tolka River. Crossing at this point may constrain future expansion.	100% of this section is dual carriageway. This section crosses the existing circuit.	There is moderate utility congestion along this section. There is one major junction on this section.	This section passes DCU Sports campus, two schools and one tennis club.	This section passes approximately 200m away from an inland bird feeding site Glasnevin DCU Sports Grounds

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
Q-W	3.2	St Mobhi Rd; Botanic Ave; Drumcondra Rd Lower; Clonliffe Rd	There is a medium flood risk along 45% of this section.	70% of this section is wide single carriageway and 30% is a narrow road. This section is completely offline.	There is high utility congestion along this section. There is one major Tolka River crossing and two major junctions on this section.	This section passes one SMR buffer. This section passes Griffith Park, two sports centres, one school and a nursing home.	This section passes adjacent to an inland bird feeding site Drumcondra / Holy Cross College. This section crosses the Tolka River. There are mature trees next to the road along 35% of the section.
W-X	0.2	Poplar Row	There is a medium flood risk along 100% of this section.	100% of this section is wide single carriageway. This section is completely offline.	There is high utility congestion along this section. There are no major crossings on this section.	This section passes one SMR buffer.	There is a medium flood risk along 100% of this section.
X-AC	0.1	Poplar Row	There is a medium flood risk along 100% of this section.	100% of this section is single carriageway. This section is completely offline.	There is high utility congestion along this section. There is one major junction on this section.	This section passes no cultural heritage sites, emergency or critical services.	This section passes approximately 50m away from an inland bird feeding site Dublin Harbour / Fairview Park
AC-AD	0.5	East Wall Rd	There is a medium flood risk along 65% of this section.	100% of this section is single carriageway. This section crosses the existing circuit.	There is high utility congestion along this section. There is one major railway crossing and one major junction on this section.	This section passes one fire station.	This section passes approximately 50m away from an inland bird feeding site Dublin Harbour / Fairview Park This section runs parallel to the Tolka River.
AD-AI	0.9	East Wall Rd	No technical issues on this section.	100% of this section is wide single carriageway. This section is completely offline.	There is high utility congestion along this section. There is one major junction on this section.	There is a high concentration of industry and shops along this section.	This section is adjacent to the North Dublin Bay pNHA.

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
AI-AJ	0.2	East Wall Rd	No technical issues on this section.	100% of this section is wide single carriageway. This section is completely offline.	There is low utility congestion along this section. There are no major junctions on this section	This section passes no cultural heritage sites, emergency or critical services.	No environmental issues on this section.
C-E	1.9	St Margaret's Rd; McKee Ave; Seamus Ennis Rd	The section passes over a major junction that could constrain future expansion on this route.	This section is a mix of wide and 2-lane single carriageway. The existing circuit is parallel to 15% of this section.	There is a mix of high and moderate utility congestion along this section. There is one major five-way junction on this section and two other major junctions.	This section passes Finglas Village Centre. The section also passes a medical centre, school and Finglas Industrial Estate.	No environmental issues on this section.
E-Q	2.6	Glasanaon Rd; Fitzmaurice Rd; Ballygall Rd E; Griffith Ave	No technical issues on this section.	100% of this section is single carriageway. The existing circuit is parallel to 100% of this section.	There is high utility congestion along this section. There is one major junction on this section.	This section passes one SMR buffer. This section also passes four schools, two parks and a sport complex.	This section passes the following inland bird feeding sites: Finglas/Geal Scolí Uí Earcain (adjacent); Johnstown Park (adjacent); and Glasnevin DCU Sports Grounds (approx. 50m) There are mature trees adjacent to the road along 5% of this section.
Q-U	1	Griffith Ave	No technical issues on this section.	100% of this section is wide single carriageway. The existing circuit is parallel to 100% of this section.	There is high utility congestion along this section. There is one major junction on this section.	This section passes a medical centre and a church.	This section passes approximately 140m away from an inland bird feeding site Pairc Imeartas. There are mature trees adjacent to the road along 100% of this section.

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
U-AN	0.9	Griffith Ave	No technical issues on this section.	100% of this section is wide single carriageway. The existing circuit is parallel to 100% of this section.	There is high utility congestion along this section. There are no major junctions on this section.	This section passes one school.	This section passes the following inland bird feeding sites: All Hallow's DCU Campus (approx. 140m); and Donnycarney Pobalscol (approx. 180m) There are mature trees adjacent to the road along 100% of this section.
AN-AO	0.9	Griffith Ave	No technical issues on this section.	100% of this section is wide single carriageway. This section is completely offline.	There is high utility congestion along this section. There is one major junction on this section.	This section passes through one DCC Architectural Conservation Area. The section also passes four schools.	This section passes adjacent to inland bird feeding site Marino Ardscol Ris. There are mature trees adjacent to the road along 100% of this section.
U-Y	2.2	Griffith Ave; Philipsburgh Ave; Fairview Strand	No technical issues on this section.	50% of this section is wide single carriageway and 50% is a narrow road. The existing circuit is parallel to 40% of this section and it crosses in one location.	There is high utility congestion along this section. There are no major junctions on this section.	This section passes Croydon Park, one medical centre, one school and one pitch and putt club.	This section passes the following inland bird feeding sites: All Hallow's DCU Campus (approx 140m); and Donnycarney Pobalscol (approx 180m). There are mature trees adjacent to the road along 45% of this section.
Y-AC	0.3	Annesley Bridge Rd	The section passes over the Tolka River. Crossing at this point may constrain future expansion.	100% of this section is wide single carriageway. The existing circuit crosses in one location.	There is low utility congestion along this section. There is one major junction and a major crossing of the Tolka river on this section.	This section passes Fairview Park.	This section passes adjacent to inland bird feeding site Dublin Harbour / Fairview Park This section crosses the Tolka River. There are mature trees adjacent to the road along 40% of this section.

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
E-P	1.9	Ballygall Rd W; Glasnevin Ave	No technical issues on this section.	100% of this section is single carriageway. This section is completely offline.	There is high utility congestion along this section. There is one major junction on this section.	This section passes one school.	This section passes approximately 170m away from an inland bird feeding site Finglas Beneavin de la Salle. There are mature trees adjacent to the road along 10% of this section.
P-T	1.5	Collins Ave Ext; Collins Ave W	No technical issues on this section.	This section is a mix of wide and 2-lane single carriageway. This section is completely offline.	There is moderate utility congestion along this section. There is one major junction on this section.	This section passes DCU, one school and a sports club.	There are mature trees adjacent to the road along 5% of this section.
T-V	1.9	Collins Ave	No technical issues on this section.	100% of this section is single carriageway. This section is completely offline.	There is high utility congestion along this section. There is one major junction on this section.	This section passes two sports clubs.	There are mature trees adjacent to the road along 5% of this section.
V-Z	1.4	Malahide Road	No technical issues on this section.	This section is a mix of dual and wide single carriageway. This section is completely offline.	There is high utility congestion along this section. There are two major junctions on this section.	This section passes through one DCC Architectural Conservation Area. The section also passes a veterinary hospital, four schools, two parks and two sports clubs.	This section passes adjacent to inland bird feeding sites Clontarf Golf Club; and Marino Ardscol Ris. However, both sites are well screened from the road. There are mature trees adjacent to the road along 20% of this section.
Z-Y	0.5	Marino Mart; Fairview	No technical issues on this section.	100% of this section is wide single carriageway. This section is completely offline.	There is high utility congestion along this section. There is one major junction on this section.	This section passes one school and one park.	This section passes adjacent to inland bird feeding site Dublin Harbour / Fairview Park There are mature trees adjacent to the road along 60% of this section.

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
C-D	0.4	St Margaret's Rd	No technical issues on this section.	This section is a mix of dual and wide single carriageway. This section is completely offline.	There is high utility congestion along this section. There is one major junction on this section.	This section passes Charlestown Shopping Centre.	No environmental issues on this section.
D-N	2.6	St Margaret's Rd	No technical issues on this section.	This section is a mix of dual and wide single carriageway. This section is completely offline.	There is high utility congestion along this section. There are two major junctions on this section.	This section passes two SMR buffers. This section passes Ikea and one sports club.	No environmental issues on this section.
N-O	0.3	Ballymun Rd	No technical issues on this section.	100% of this section is dual carriageway. This section is completely offline.	There is low utility congestion along this section. There is one major junction on this section.	This section passes no cultural heritage sites, emergency or critical services.	No environmental issues on this section.
O-T	3.1	Santry Ave; Swords Rd	No technical issues on this section.	This section is a mix of wide and 2-lane single carriageway. This section is completely offline.	There is high utility congestion along this section. There are two major junctions on this section.	This section passes Omni Shopping Centre and Santry Village centre. The section also passes two sport parks and a medical centre.	This section passes adjacent to the Santry Demesne pNHA. There are mature trees adjacent to the road along 20% of this section.
T-U	0.8	Swords Rd; Drumcondra Rd Lower	No technical issues on this section.	100% of this section is wide single carriageway. The existing circuit crosses in one location.	There is high utility congestion along this section. There is one major junction on this section.	This section passes Dublin City Mortuary, one school, one medical centre and two sports clubs.	This section passes adjacent to inland bird feeding site Pairc Imeartha.

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
U-W	2.1	Drumcondra Rd Lower; Richmond Rd; Luke Kelly Bridge	<p>The section passes over the Tolka River. Crossing at this point may constrain future expansion.</p> <p>There is a medium flood risk along 60% of this section.</p>	<p>50% of this section is wide single carriageway, 50% single carriageway and 20% is a narrow road.</p> <p>This section is completely offline.</p>	<p>There is a mix of high and moderate utility congestion along this section.</p> <p>There are two major junctions on this section.</p>	<p>This section passes three SMR buffers.</p> <p>The section also passes DUC St. Patricks Campus, a school, medical centre and two sports clubs.</p>	<p>This section passes the following inland bird feeding sites: All Hallow's DCU Campus (approx. 200m); Drumcondra/ St. Patricks College (approx. 190m); and Drumcondra/Holy Cross College (approx. 70m)</p> <p>This section crosses the Tolka River.</p> <p>There are mature trees adjacent to the road along 20% of this section.</p>
X-AF	1.2	Annesley Pl; N Strand Rd; Ossory Rd; Irish Rail land	<p>This section runs on Irish Rail land. Using this section may also constrain future expansion in this area.</p> <p>There is a medium flood risk along 60% of this section.</p>	<p>30% of this section is wide single carriageway, 15% single carriageway and 20% is a narrow. 35% off road.</p> <p>This section is completely offline.</p>	<p>There is a mix of high and moderate utility congestion along this section.</p> <p>This section crosses under two railway bridges.</p>	<p>This section passes under two railway bridges and one school.</p>	<p>This section passes adjacent to the Royal Canal pNHA.</p>
AF-AH	0.6	Dock Rd	<p>This section is located entirely on Irish Rail land.</p>	<p>100% of this section is on 3rd party land.</p> <p>The existing circuit crosses in one location.</p>	<p>There is high utility congestion along this section.</p> <p>There is one crossing under a motor bridge on this section.</p>	<p>This section passes no cultural heritage sites, emergency or critical services.</p>	<p>No environmental issues on this section.</p>
A-D	1.1	Private land; R122	<p>90% of this section is located on private land.</p> <p>This section crosses the M50. This will constrain crossing the M50 at this location in the future.</p>	<p>90% of this section is off road and accessible and 10% is a two-lane road.</p> <p>This section is completely offline.</p>	<p>There is low utility congestion along this section.</p> <p>This section crosses the N2 and the M50.</p>	<p>This section crosses the N2 and M50.</p>	<p>90% of this section is located on non-irrigated arable land.</p>

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
N-AL	2.4	Northwood Ave; Swords Rd	75% of this section is located on a private road. There is a high flood risk along 5% of this section.	100% of this section is wide single carriageway. This section is completely offline.	There is a mix of high and moderate utility congestion along this section. There is one major junction on this section.	The section passes the M50. This section also passes Gulliver's Retail Park, three medical centres, a park and a sports stadium.	This section crosses Santry Demesne pNHA and 3 no. sites of native woodlands and 1 no ancient woodland site. This section crosses the Santry River.
AL-AM	2.1	Coolock Ln; Oscar Traynor Rd	This section crosses the M50. This may constrain crossing the M50 at this location in the future.	100% of this section is wide single carriageway. This section is completely offline.	There is a mix of moderate and low utility congestion along this section. There is one major junction and one M50 crossing on this section.	This section passes two shopping centres and three sports centres.	This section passes adjacent to the Kilmore / Oscar Traynor Football Pitches and Coolock Park East inland bird feeding sites.
AM-V	2.6	Kilmore Rd; Malahide Rd	No technical issues on this section.	This section is a mix of dual and wide single carriageway. This section is completely offline.	There is a mix of moderate and low utility congestion along this section. There are three major junctions on this section.	This section passes five SMR buffers and an area of high potential archaeological potential in Artane / Kilmore Road. The section also passes two schools, a care centre and a shopping centre.	This section passes the following inland bird feeding sites: St. John of Gods Girls N.s (approx. 110m); and Artane/St. David's College (approx. 140m)
Z-AA	0.5	Clontarf Rd	This section crosses under the railway. This may constrain crossing at this location in the future.	This section is a mix of dual and wide single carriageway. This section is completely offline.	There is low utility congestion along this section. There is one major junction and one crossing under the railway bridge on this section.	This section passes under one railway bridge, one medical centre and three sports centres.	This section passes the following inland bird feeding sites: Dublin Harbour / Fairview Park (approx. 140m); and Alfie Byrne Clontrd Rd East Point (adjacent) There are mature trees adjacent to the road along 35% of this section.

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
AA-AD	1.1	Alfie Byrne Rd	The section passes over the Tolka River. Crossing at this point may constrain future expansion.	This section is a mix of wide single carriageway and a two-lane road. This section is completely offline.	There is high utility congestion along this section. There is one major junction on this section.	This section passes the Clontarf Road train station, one park and one sports track.	This section passes the following inland bird feeding sites: Dublin Harbour / Fairview Park (adjacent); Dublin Harbour / East Point Park (adjacent); and Alfie Byrne Clontrd Rd East Point (adjacent) This section crosses the Tolka River, and is adjacent to the River Tolka Estuary SPA and North Dublin Bay pNHA There are mature trees adjacent to the road along 10% of this section.
AA-AB	0.5	Clontarf Rd	There is a high flood risk along 100% of this section.	100% of this section is wide single carriageway. This section is completely offline.	There is low utility congestion along this section. There is one major junction on this section.	This section passes one Garda Station. It also passes Clontarf Road Coastal walkway.	This section is adjacent to the inland bird feeding site Alfie Byrne Clontrd Rd East Point. This section is adjacent to River Tolka Estuary SPA and North Dublin Bay pNHA.
AB-AI	1.2	Clontarf Rd; Estuary Crossing; Bond Rd; Promenade Rd	This section includes an HDD crossing of the River Liffey Estuary. An HDD crossing at this point may constrain future expansion at this point.	This section is a mix of HDD and a two-lane road. This section is completely offline.	There is a mix of high and moderate utility congestion along this section. This section includes an HDD crossing of the Liffey Estuary. There is one major junction and one crossing under pedestrian bridge on this section.	This section passes Clontarf Road Coastal walkway and one childcare centre.	This section involves an HDD crossing of the Tolka River Estuary. The section also crosses the River Tolka Estuary SPA and North Dublin Bay pNHA, as well as inland bird feeding site Alfie Byrne Clontrd Rd East Point.

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
AB-AK	1.9	Clontarf Rd; Estuary Crossing; Off Rd; 2 Branch Rd N; Alexandra Rd	<p>This section includes an HDD crossing of the River Liffey Estuary.</p> <p>An HDD crossing at this point may constrain future expansion at this point.</p> <p>Part of this section is located on Dublin Port Company land.</p>	<p>This section is a mix of HDD, off road and a two-lane road.</p> <p>This section is completely offline.</p>	<p>There is a mix of high, moderate and low utility congestion along this section.</p> <p>This section includes an HDD crossing of the Liffey Estuary.</p>	<p>This section passes Clontarf Road Coastal walkway and one yacht club.</p>	<p>This section involves an HDD crossing of the Tolka River Estuary.</p> <p>The section also crosses the River Tolka Estuary SPA and North Dublin Bay pNHA.</p>
A-F	4.1	Private land; Cappagh Rd; Ratoath Rd	<p>35% of this section is located on private land.</p> <p>This section crosses the M50. This will constrain crossing the M50 at this location in the future.</p>	<p>35% of this section is off road and accessible and 65% is a two-lane road.</p> <p>This section is completely offline.</p>	<p>There is a mix of high and low utility congestion along this section.</p> <p>There is one major junction on this section and one M50 crossing.</p>	<p>This section passes one Hospital.</p> <p>It also passes the M50, two schools and a sports club.</p>	<p>This section runs through private pastures and there are mature trees next to 5% of the section.</p>
F-G	0.9	Tolka Valley Rd	<p>No technical issues on this section.</p>	<p>100% of this section is single carriageway.</p> <p>This section is completely offline.</p>	<p>There is high utility congestion along this section.</p> <p>There is one major junction on this section.</p>	<p>This section passes one school and one park.</p>	<p>No environmental issues on this section.</p>
G-H	1	Tolka Valley Rd	<p>No technical issues on this section.</p>	<p>100% of this section is single carriageway.</p> <p>This section is completely offline.</p>	<p>There is high utility congestion along this section.</p> <p>There is one major junction on this section.</p>	<p>This section passes one business park and one park.</p>	<p>No environmental issues on this section.</p>
F-J	0.6	Ratoath Rd	<p>The section passes over the Tolka River. Crossing at this point may constrain future expansion.</p> <p>There is a medium flood risk along 20% of this section.</p>	<p>100% of this section is single carriageway.</p> <p>This section is completely offline.</p>	<p>There is high utility congestion along this section.</p> <p>There is one major junction and one major crossing of the Tolka River on this section.</p>	<p>This section passes through one SMR buffer.</p> <p>It also passes one park.</p>	<p>This section crosses the Tolka River.</p>

DUBLIN REPLACEMENT UNDERGROUND CABLE PROGRAMME - ROUTE OPTIONS ASSESSMENT REPORT - FINGLAS TO NORTH WALL

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
J-K	0.7	Ballyboggan Rd	No technical issues on this section.	100% of this section is single carriageway. This section is completely offline.	There is high utility congestion along this section. There are no major junctions on this section.	This section passes Dublin Industrial Estate and one park.	No environmental issues on this section.
K-L	0.9	Ballyboggan Rd	No technical issues on this section.	100% of this section is single carriageway. This section is completely offline.	There is high utility congestion along this section. There is one major junction on this section.	This section passes through one SMR buffer. It also passes Dublin Industrial Estate, one sports centre and one park.	There are mature trees adjacent to the road in 40% of this section.
J-M	0.9	Ballyboggan Rd; Hamilton View; Royal Canal Greenway	70% of this section is located next to the Royal Canal. Using this route may constrain future expansion next to the canal.	70% of this section is on the Royal Canal towpath.30% of this section is on a single carriageway. This section is completely offline.	There is high utility congestion along this section. There is one crossing under a motor bridge on this section.	This section passes through the Royal Canal Greenway.	This section runs in the Royal Canal pNHA
M-S	2.1	Royal Canal Greenway	100% of this section is located next to the Royal Canal. Using this route may constrain future expansion next to the canal.	100% of this section is on the Royal Canal. This section is completely offline.	There is high utility congestion along this section. There is one major junction, one crossing under and one over a railway bridge on this section.	This section passes through the Royal Canal Greenway and passes one sports club.	This section runs in the Royal Canal pNHA
S-AE	2.4	Royal Canal Greenway	100% of this section is located next to the Royal Canal. Using this route may constrain future expansion next to the canal.	100% of this section is on the Royal Canal, however works are being delivered along this section as part of the Canal Greenway upgrades. This section is completely offline.	Utility diversions are planned as part of the Royal Canal greenway upgrades. There are three major junction crossings, one crossing of the Royal Canal, one crossing under and one over a railway bridge on this section.	This section passes through the Royal Canal Greenway and passes Croke Park.	This section runs in the Royal Canal pNHA

DUBLIN REPLACEMENT UNDERGROUND CABLE PROGRAMME - ROUTE OPTIONS ASSESSMENT REPORT - FINGLAS TO NORTH WALL

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
AE-AG	0.5	Royal Canal Greenway	100% of this section is located next to the Royal Canal. Using this route may constrain future expansion next to the canal.	100% of this section is on the Royal Canal. This section is completely offline.	There is low utility congestion along this section. There is one major junction on this section.	This section passes through the Royal Canal Greenway.	This section runs in the Royal Canal pNHA
A-AP	0.8	M50 crossing; North Park; Off Rd; Casement Rd	This section includes an HDD crossing of the M50. An HDD crossing at this point may constrain future expansion at this point.	This section is a mix of HDD, private roads and public parks. This section is completely offline.	There is a mix of moderate and low utility congestion along this section. There is one major crossing of the M50 on this section.	This section crosses the M50.	35% of this section runs through public parks.
AP-G	2.6	Casement Rd; Cardiff Castle Rd; Finglaswood Rd; Cappagh Rd; Patrickswell Pl; Off Road	35% of this section runs through accessible public parks.	This section is a mix of single carriageway roads, and public parks. This section is completely offline.	There is a mix of high, moderate and low utility congestion along this section. There are two major junctions on this section.	This section passes three SMR buffers. There is significant potential for archaeology to be discovered based on records. The section passes one Garda Station. It also passes one school, one medical centre, one sports centre and one play area.	This section crosses two inland bird feeding sites (Finglas/Dunsink Road and Finglas/Farnham Drive Park)
G-K	0.4	Off Road (Tolka Valley Park)	100% of this section runs through accessible public parks. There is a medium flood risk along 15% of this section.	This section is 100% through the Tolka Valley park. This section is completely offline.	There is low utility congestion along this section. There is one major crossing of the Tolka River on this section.	This section passes one SMR buffer. It also passes through Tolka Valley Park.	100% of this section runs through public parks.
K-M	0.3	Broombridge Rd	No technical issues on this section.	100% of this section is single carriageway. This section is completely offline.	There is high utility congestion along this section. There are no major junctions on this section.	This section passes Broombridge train and Luas stations. It also passes Dublin Industrial Estate.	No environmental issues on this section.

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental
AE-AF	0.4	Royal Canal Greenway; Royal Canal crossing onto Irish Rail Land	<p>This section includes an HDD crossing of the Royal Canal onto Irish Rail land.</p> <p>An HDD crossing at this point may constrain future expansion at this point.</p>	<p>This section is a mix of the Royal Canal and 3 party lands.</p> <p>This section is completely offline.</p>	<p>There is low utility congestion along this section.</p> <p>There is one major crossing of the Royal Canal on this section.</p>	<p>This section passes through the Royal Canal Greenway.</p>	<p>This section runs in the Royal Canal pNHA</p>
M50 tunnel	5.3	M50	<p>Section located in the M50 tunnel adds to the technical operating risk.</p>	<p>Road closure in the M50 tunnel would be required.</p> <p>This section is completely offline.</p>	<p>There is low utility congestion along this section.</p>	<p>The M50 tunnel is critical for access in and out of the city.</p>	<p>No environmental issues on this section.</p>

4.2 Section MCA Output Summary

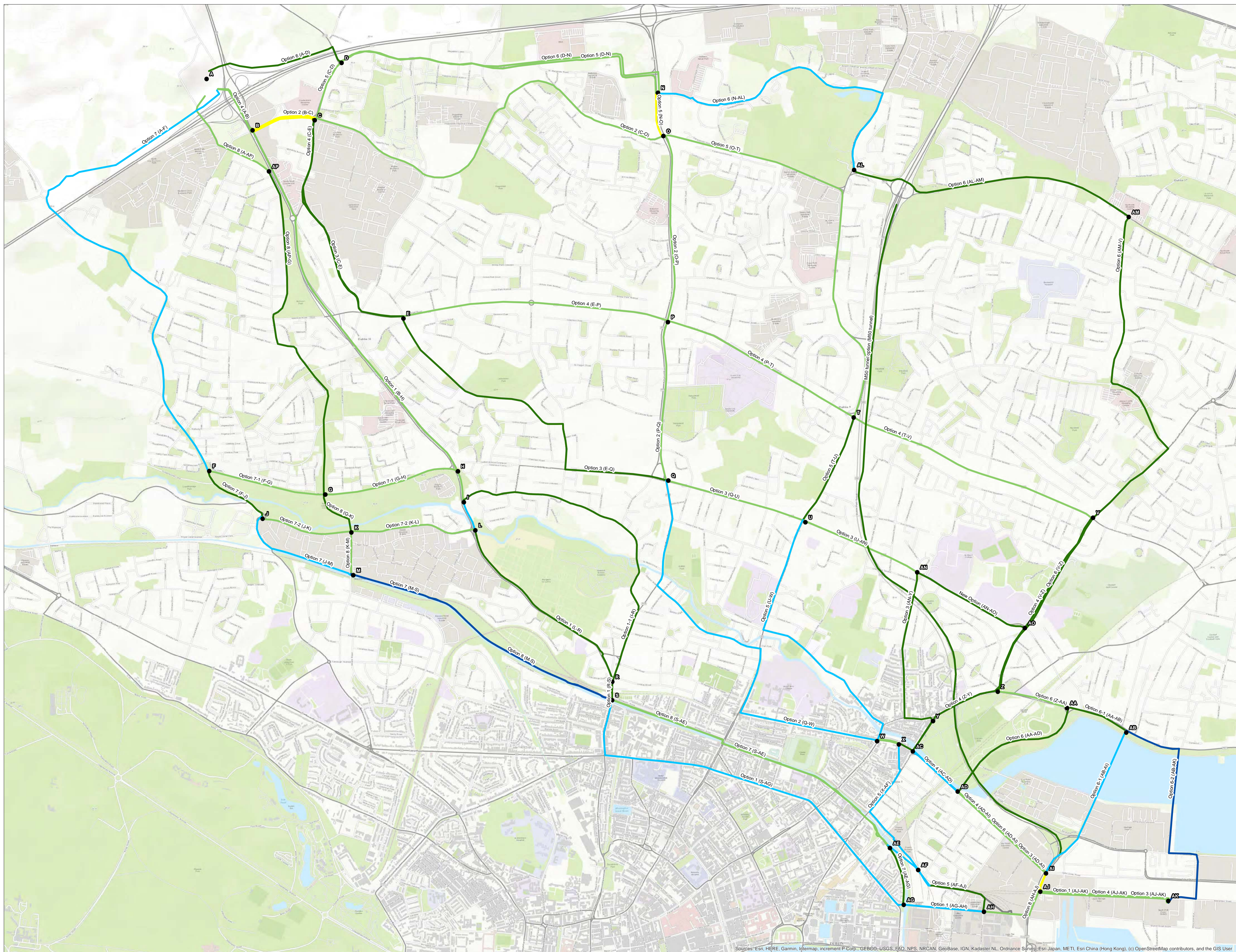
Using the methodology outlined in Chapter 2, the results for each section are outlined in Table 4-2.

Table 4-2: Summary results of multi-criteria assessment

Section	Technical	Deliverability	Economic	Socio-Economic	Environmental	Overall rank
A-B	Blue	Green	Green	Yellow	Yellow	Green
B-H	Green	Green	Green	Blue	Green	Green
H-I	Green	Green	Green	Green	Green	Green
I-L	Green	Green	Green	Green	Green	Green
L-R	Green	Green	Green	Blue	Green	Green
I-R	Green	Green	Green	Blue	Green	Green
R-S	Green	Green	Green	Blue	Yellow	Green
S-AG	Green	Green	Green	Dark Blue	Green	Blue
AG-AH	Green	Blue	Blue	Green	Green	Blue
AH-AJ	Yellow	Green	Green	Green	Yellow	Green
AJ-AK	Green	Green	Green	Green	Yellow	Green
B-C	Yellow	Green	Green	Green	Yellow	Yellow
C-O	Yellow	Green	Green	Green	Green	Green
O-P	Yellow	Green	Green	Blue	Yellow	Green
P-Q	Green	Green	Green	Green	Green	Green
Q-W	Green	Blue	Green	Blue	Green	Blue
W-X	Green	Green	Green	Green	Green	Green
X-AC	Green	Green	Green	Green	Green	Green
AC-AD	Green	Blue	Green	Green	Green	Blue
AD-AI	Yellow	Green	Green	Green	Green	Green
AI-AJ	Yellow	Green	Green	Green	Yellow	Yellow
C-E	Green	Green	Green	Green	Yellow	Green
E-Q	Yellow	Blue	Green	Blue	Green	Green
Q-U	Yellow	Green	Green	Green	Green	Green
U-AN	Yellow	Green	Green	Green	Green	Green
AN-AO	Yellow	Green	Green	Green	Green	Green
U-Y	Yellow	Blue	Green	Green	Green	Green
Y-AC	Green	Green	Green	Green	Green	Green
E-P	Yellow	Green	Green	Green	Green	Green
P-T	Yellow	Green	Green	Green	Green	Green
T-V	Yellow	Green	Green	Green	Green	Green
V-Z	Yellow	Green	Green	Blue	Green	Green
AO-Z	Yellow	Green	Green	Green	Green	Green
Z-Y	Yellow	Green	Green	Green	Green	Green
C-D	Yellow	Green	Green	Green	Yellow	Yellow
D-N	Yellow	Green	Green	Green	Yellow	Green
N-O	Yellow	Green	Green	Green	Yellow	Yellow
O-T	Yellow	Green	Green	Green	Green	Green
T-U	Yellow	Green	Green	Green	Green	Green
U-W	Green	Blue	Green	Blue	Green	Blue
X-AF	Green	Blue	Green	Green	Green	Blue
AF-AH	Green	Blue	Green	Green	Yellow	Green
A-D	Green	Green	Green	Green	Green	Green
N-AL	Green	Green	Green	Green	Green	Blue
AL-AM	Green	Green	Green	Green	Green	Green
AM-V	Yellow	Green	Green	Blue	Green	Green
Z-AA	Green	Green	Green	Green	Green	Green
AA-AD	Green	Green	Green	Green	Green	Green

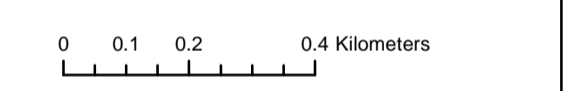
Section	Technical	Deliverability	Economic	Socio-Economic	Environmental	Overall rank
AA-AB	Green	Green	Green	Green	Green	Green
AB-AI	Green	Green	Green	Light Green	Blue	Blue
AB-AK	Blue	Blue	Blue	Green	Blue	Dark Blue
A-F	Green	Green	Green	Green	Light Green	Blue
F-G	Yellow	Green	Light Green	Green	Yellow	Light Green
G-H	Yellow	Green	Light Green	Green	Yellow	Yellow
F-J	Light Green	Green	Green	Green	Light Green	Green
J-K	Yellow	Green	Light Green	Green	Yellow	Light Green
K-L	Yellow	Green	Light Green	Green	Light Green	Light Green
J-M	Green	Green	Light Green	Green	Blue	Blue
M-S	Green	Blue	Green	Green	Blue	Dark Blue
S-AE	Green	Light Green	Light Green	Green	Green	Green
AE-AG	Green	Green	Light Green	Light Green	Blue	Green
A-AP	Light Green	Light Green	Light Green	Green	Light Green	Light Green
AP-G	Light Green	Green	Light Green	Green	Green	Green
G-K	Light Green	Green	Light Green	Light Green	Green	Green
K-M	Yellow	Green	Green	Light Green	Yellow	Light Green
AE-AF	Blue	Green	Green	Green	Blue	Blue
M50 tunnel	Green	Green	Green	Green	Yellow	Green

The results from the multi-criteria assessment were mapped showing the overall rating of each section. This map is shown in Figure 4-1 on Page 40.



Legend

- Nodes
- Weighted Total as % of possible score
 - 0 - 32%
 - 33 - 40%
 - 41 - 48%
 - 49 - 56%
 - 57 - 100%
 - No Rating



Client

Dublin Cables Project

Title

CP1100 Finglas to North Wall

Multi-Criteria Analysis Weighting

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Issue Details

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5 ROUTE BUILDING

5.1 Multi Criteria Assessment Exceptions

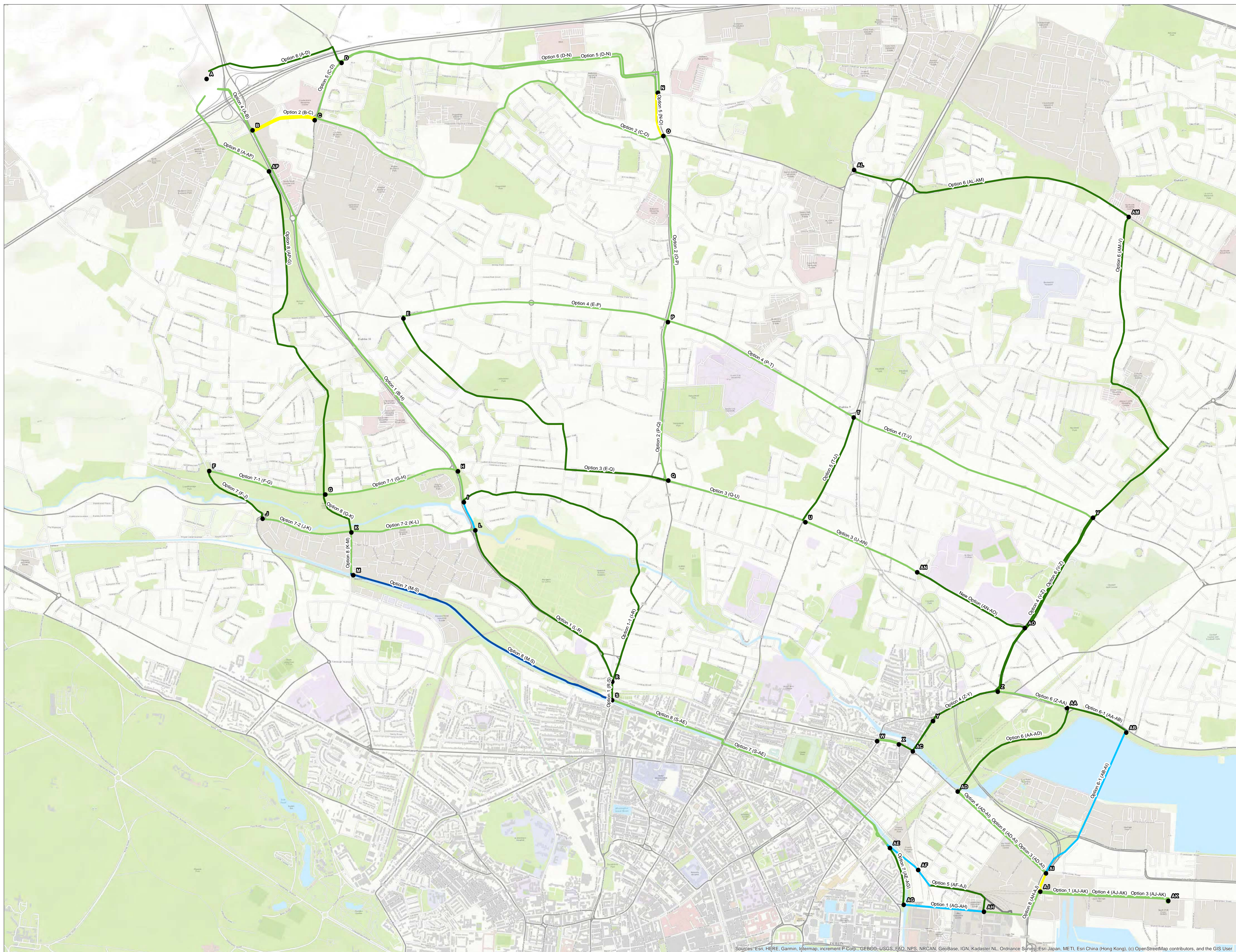
To create optimised route options that have the lowest overall risk factors, some sections were excluded from the route building exercise. In general, any section that was ranked light blue or dark blue overall, was excluded from further studies.

The overall summary output of the Multicriteria Assessment averages the ranking for each criterion, which are themselves averages of the sub criteria. Because of how many sub criteria and criteria there are, there might be an instance where a section may not be deemed feasible due to one factor, but if the other criteria rank well, the overall rank might be low risk. For example, the section might not be feasible from a deliverability perspective, but due to low environmental and technical risks, the overall ranking is low. In these cases, judgement is exercised, and the section will be removed from further consideration despite the low overall risk ranking, and vice versa in the case of high-ranking sections that are feasible options. The explanation for these exceptions are given below. The table below summarises whether sections will be included or excluded from future route building.

Table 5-1: Route sections included or excluded from route builder

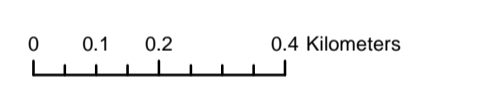
Section	Overall Rank	Including/Excluding
S-AG		Excluding from route builder.
AG-AH		Including in route builder; however special consideration will be needed for crossing the Royal Canal and elevated road section.
Q-W		Excluding from route builder.
AC-AD		Excluding from route builder.
C-E		Excluding from route builder. Section travels passed Finglas Village Centre.
U-Y		Excluding from route builder. Very narrow roads.
O-T		Excluding from route builder. Section travels passed Santry Village Centre.
U-W		Excluding from route builder.
X-AF		Excluding from route builder.
N-AL		Excluding from route builder.
AB-AI		Including in route builder. HDD across the Estuary is a viable crossing option.
AB-AK		Excluding from route builder.
A-F		Excluding from route builder.
J-M		Excluding from route builder.
M-S		Including in route builder. If construction can be timed with Royal Canal Greenway upgrades Phase 4, the deliverability of this section becomes much less risky.
AE-AF		Including in route builder. HDD across the Royal Canal at this point is a good crossing option that excludes the section of elevated road on AG-AH.
M50 tunnel		Excluding from route builder. <ul style="list-style-type: none"> This is a vital transport route for the city and for HGV access to Dublin Port. There would be a requirement to construct six joint bays (8m x 2.5m x 2m deep) within the tunnel along with the ducting for the circuit, this is not considered to be possible whilst maintaining the operation of the tunnel, extended bore closures would likely be required.

A map of the study area excluding the sections listed above is shown in Figure 5-1 on page 42.



Legend

- Nodes
- Weighted Total as % of possible score
 - 0 - 32%
 - 33 - 40%
 - 41 - 48%
 - 49 - 56%
 - 57 - 100%
 - No Rating



Client

Dublin Cables Project

Title

CP1100 Finlagan to North Wall

Multi-Criteria Analysis Weighting

Selected Routes

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Issue Details

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5.2 Possible Route Options

From the route sections that have been progressed to this stage, four possible route options can be built. These route options are discussed in Chapter 5.3 to 5.6.

5.3 Optimised Route Option 1 (Option A)

Optimised Route Option 1 is shown in Figure 5-2. The total length of this route is 10.8km.

Optimised Route Option 1 commences at the Finglas substation and crosses under the M50 using the service tunnels at the M50/R135 junction. The route travels south along North Road, Finglas Bypass and Finglas Road. On Finglas Road the route crosses the Tolka River.

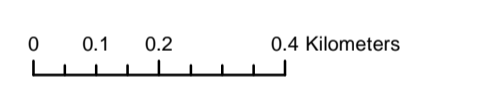
The route crosses over two railway bridges and turns in an easterly direction onto the Royal Canal greenway. On this section, the route aligns with the current Royal Canal greenway Phase 3 upgrades. As part of these upgrades, advanced ducting is being placed along the Royal Canal greenway. This greatly improves the deliverability of this section. A map of the Royal Canal greenway upgrades is shown in Figure 5-3.

The route follows the Royal Canal greenway to Sheriff Street Upper, where it crosses Spencer Bridge. At the junction with East Wall Road, the route turns north onto East Wall Road and then east onto Alexandra Road as far as the North Wall substation.



Legend

--- Finglas to North Wall Option A



Client



Dublin Cables Project

Title

Emerging Best Options
Finglas to North Wall
Option A



Issue Details

File Identifier:
 CP1100-RPS-00-XX-DR-C-DG1022

Status:	Rev:	Model File Identifier:
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This route option works in conjunction with the Royal Canal greenway upgrades, phase 3. This project map is shown in Figure 5-3. During phase 3 of the Royal Canal upgrades, advanced ducting is being placed in the footpaths. Through the collaboration with this project, the disruption to the area in terms of socio-economic, environmental and other factors, will be greatly reduced.

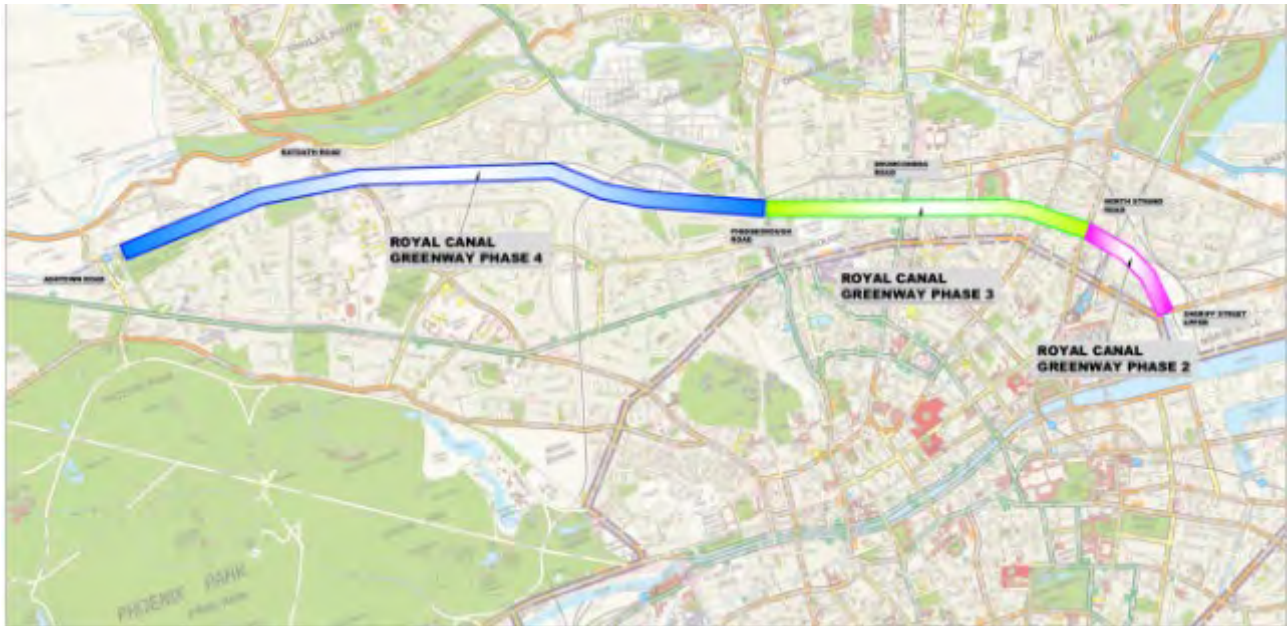


Figure 5-3: Map of Royal Canal greenway upgrades¹

5.3.1 Summary of Optimised Route Option 1 MCA Results

The overall ranking of this optimised route was mid-level / moderate risk (dark green). The breakdown showing the section level ranking is shown in Table 5-2.

Table 5-2: Multi-criteria assessment results of Optimised Route Option 1

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental	Average
A-B	0.4	Service tunnels under M50; N2	Blue	Green	Green	Yellow	Yellow	Green
B-H	2.9	North Road; Finglas Bypass; Finglas Rd	Green	Green	Green	Blue	Green	Green
H-I	0.3	Finglas Rd	Green	Green	Green	Green	Green	Green
I-L	0.2	Finglas Rd	Green	Green	Green	Green	Green	Green
L-R	1.8	Finglas Rd	Green	Green	Green	Blue	Green	Green
R-S	0.1	Prospect Road	Green	Green	Green	Blue	Yellow	Green
S-AE	2.4	Royal Canal Greenway	Green	Green	Green	Green	Green	Green
AE-AG	0.5	Royal Canal Greenway	Green	Green	Green	Green	Blue	Green
AG-AH	0.4	Sheriff Street Upper	Green	Blue	Blue	Green	Green	Blue
AH-AJ	0.8	Sheriff Street Upper; East Wall Rd	Yellow	Green	Green	Green	Yellow	Green

¹ <https://raymcadam.com/2020/04/30/whats-the-latest-on-the-royalcanalgreenway/>

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental	Average
AJ-AK	1.0	Alexandra Rd						

5.3.2 Outstanding Challenges of Optimised Route Option 1

There are several outstanding challenges on this route option that would need to be addressed with further investigation and design. They are as follows:

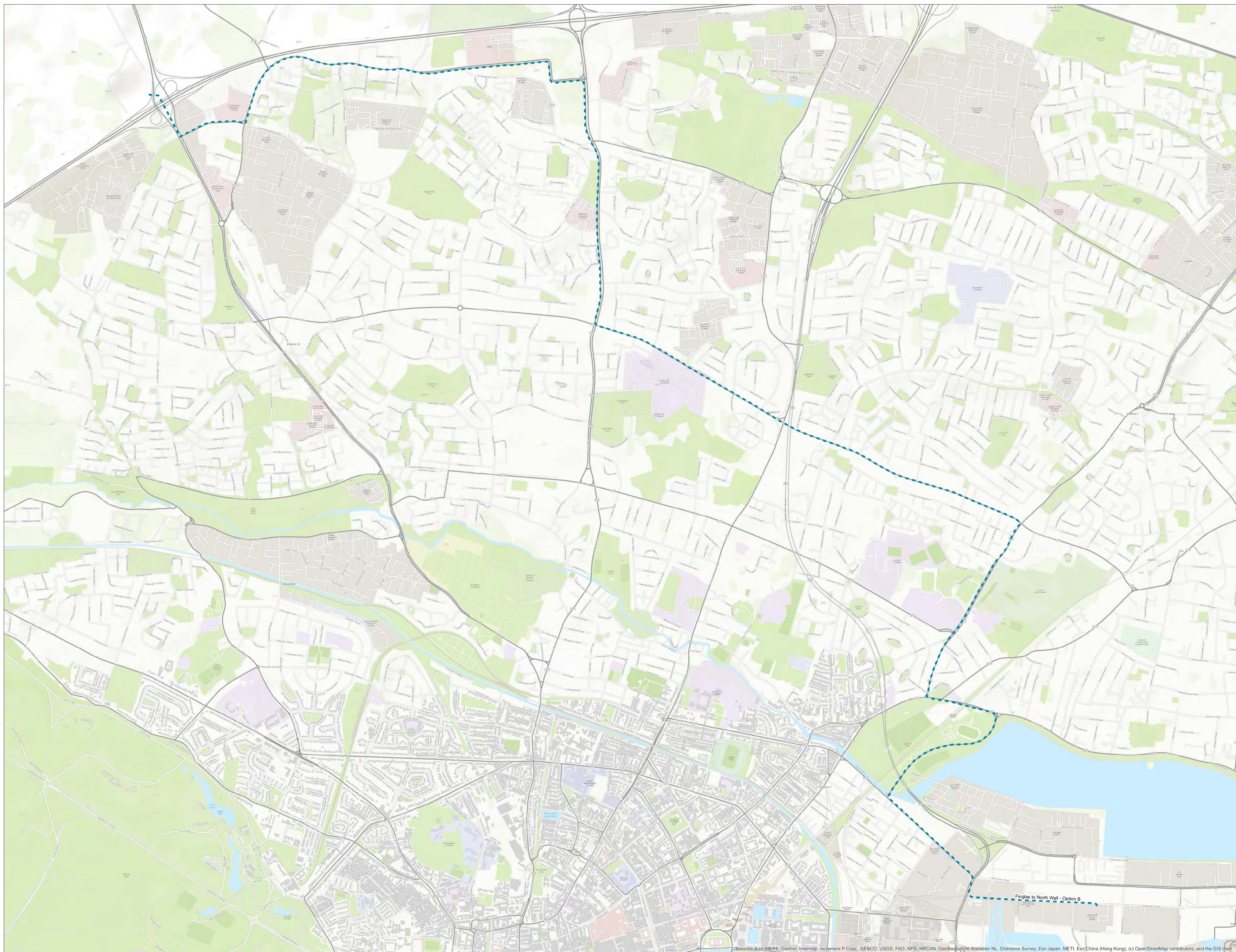
- Crossing of M50 (Section A-B)
 - Confirmation of space within the service tunnels under M50 or progression of a HDD crossing
- Crossing of Tolka River (Section I-L)
 - Space in bridge deck to be confirmed
- Crossing of railway bridges (Section R-S)
 - Crossing methodology to be determined
- Crossing of Royal Canal and elevated road (Section AG-AH)
 - Crossing location and methodology to be determined
- Location of circuit in Alexandra Road to minimise impact on railway lines (Section AJ-AK)

5.4 Optimised Route Option 2 (Option B)

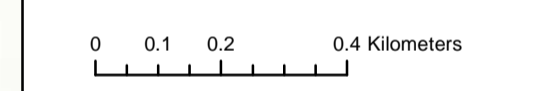
Optimised Route Option 2 is shown in Figure 5-5. This route option is 13.8km.

Optimised Route Option 2 commences at the Finglas substation and crosses under the M50 using the service tunnels at the M50/R135 junction. The route travels east along Charlestown Place, to the junction with the R104. The route follows the R104 northwards (St Margaret’s Road) to the junction with the R108 (Ballymun Road), where it follows this road south.

At the junction with Collins Avenue, the route turns in an easterly direction until R107 (Malahide Road), where the route follows the R107 south. At the junction with the R807 (Clontarf Road), the route turns eastwards to R834 (Alfie Byrne Road). On the R807, the route crosses under the Irish Rail lines. The route crosses the Tolka River using the Alfie Byrne Road bridge. At the junction with East Wall Road, the route turns east onto East Wall Road and then east onto Alexandra Road as far as the North Wall substation.



Legend
 --- Finglas to North Wall Option B



Dublin Cables Project

Title
 Emerging Best Options
 Finglas to North Wall
 Option B



Issue Details

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Approved: DC	Projection: ITM	

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5.4.1 Summary of Optimised Route Option 2 MCA Results

The overall risk ranking of this optimised route was low moderate risk (light green). The breakdown showing the section level output is shown in Table 5-4.

Table 5-3: Multi-criteria assessment results of Optimised Route Option 2

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental	Average
A-B	0.4	Service tunnels under M50; N2	Blue	Green	Light Green	Yellow	Yellow	Light Green
B-C	0.5	Charlestown Pl	Yellow	Light Green	Light Green	Light Green	Yellow	Yellow
C-D	0.4	St Margaret's Rd	Yellow	Green	Light Green	Light Green	Yellow	Yellow
D-N	2.6	St Margaret's Rd	Yellow	Green	Light Green	Green	Yellow	Light Green
O-P	1.4	Ballymun Rd	Yellow	Green	Light Green	Blue	Yellow	Light Green
P-T	1.5	Collins Ave Ext; Collins Ave W	Yellow	Green	Light Green	Green	Light Green	Light Green
T-V	1.9	Collins Ave	Yellow	Green	Light Green	Green	Light Green	Light Green
V-Z	1.4	Malahide Road	Yellow	Green	Light Green	Blue	Light Green	Green
Z-AA	0.5	Clontarf Rd	Light Green	Green	Light Green	Green	Light Green	Light Green
AA-AD	1.1	Alfie Byrne Rd	Light Green	Green	Light Green	Light Green	Green	Green
AD-AI	0.9	East Wall Rd	Yellow	Green	Light Green	Green	Light Green	Light Green
AI-AJ	0.2	East Wall Rd	Yellow	Light Green	Light Green	Light Green	Yellow	Yellow
AJ-AK	1.0	Alexandra Rd	Light Green	Green	Light Green	Light Green	Yellow	Light Green

5.4.2 Outstanding Challenges of Optimised Route Option 2

There are several outstanding challenges on this route option that would need to be addressed with further investigation and design. They are as follows:

- Crossing of M50 (Section A-B)
 - Space in service tunnels under M50 or HDD crossing
- Location of circuit in Malahide Road (heavily congested road) (Section V-Z)
- Crossing of Tolka River (Section AA-AD)
 - Space in bridge deck to be confirmed
- Location of circuit in Alexandra Road to minimise impact on railway lines (Section AJ-AK)

5.5 Optimised Route Option 3 (Option C)

Optimised Route Option 3 is shown in Figure 5-4. The total length of this route is 11.3km.

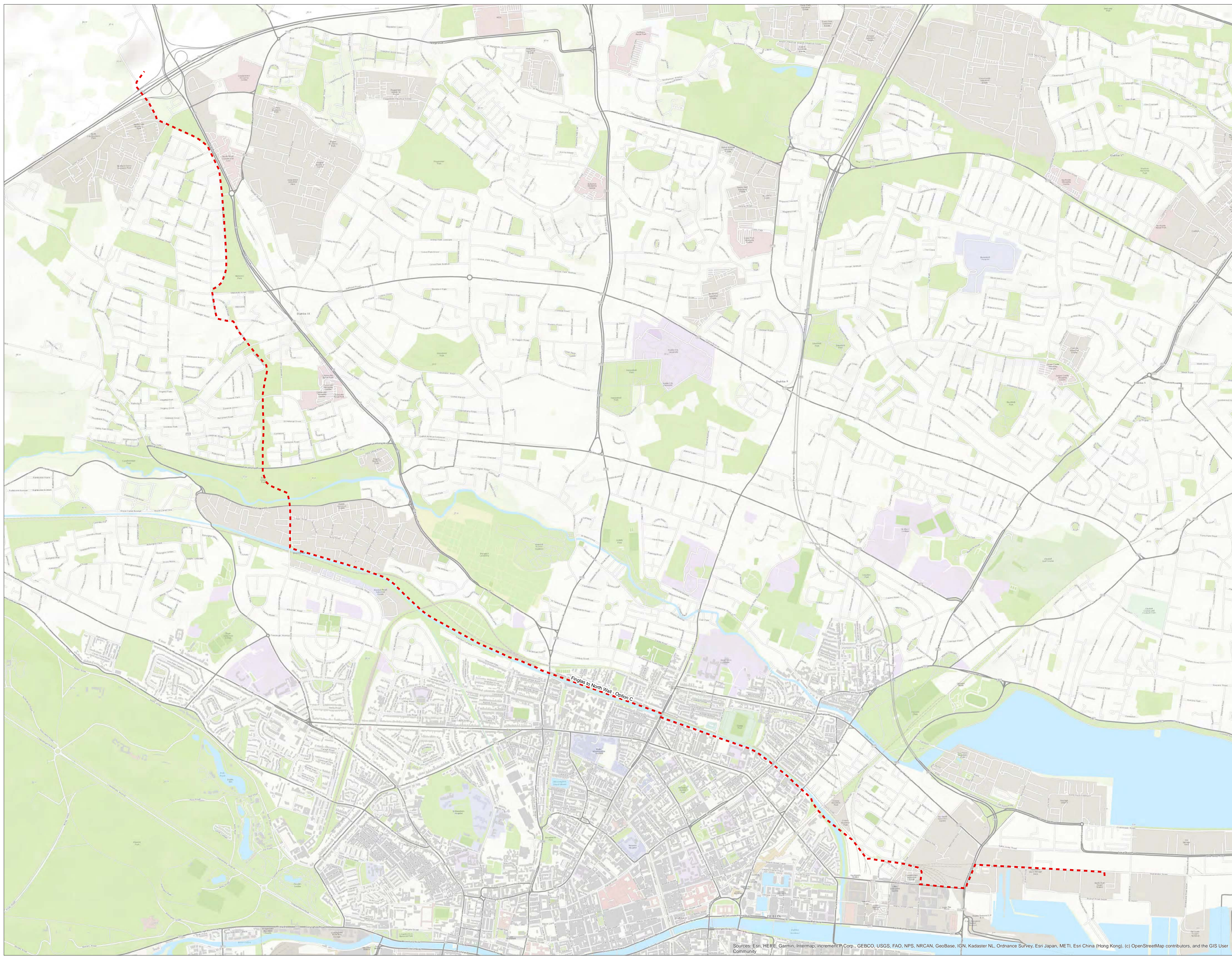
Optimised Route Option 3 commences at the Finglas substation and crosses the M50 onto North Road. The crossing methodology envisaged is HDD. From North Road, the route cuts across the open space onto Casement Road. Casement Road becomes Cardiff Castle Road. At the junction with Finglaswood Road, the route turns south.

The route proceeds down Cappagh Road and Patrickswell Place. The route follows Casement Road south, and cuts through the park, over St Helena's Road and the R102 (Tolka Valley road) and into Tolka Valley Park. Here the route crosses the Tolka River. The crossing methodology is likely to be HDD.

The route crosses Ballyboggan Road to Broombridge Road. At the Royal Canal, the route follows the Royal Canal Way in an easterly direction. This section could be delivered in conjunction with Royal Canal upgrades phase 4 (map shown in Figure 5-3). However, this project is still a number of years away as phase 3 construction has just started early 2023. Using the greenway upgrades to deliver section M-S would greatly reduce the deliverability risk of this route, however it is unclear at this stage if the project can be relied upon to proceed and in what timeframe the project will occur.

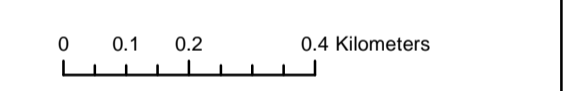
The route travels along Royal Canal Way, passing under the rail lines after Broombridge Station and over the rail lines travelling towards the Phoenix Park tunnel. The route crosses the Royal Canal on the N1 bridge to the southern side of the Royal Canal. The route runs under two overhead walkways that access Croke Park.

After crossing North Stand Road, the route crosses the Royal Canal onto Irish Rail land. The crossing methodology envisaged is HDD. At the junction with East Wall Road, the route turns north onto East Wall Road and then east onto Alexandra Road as far as the North Wall substation.



Legend

--- Finglas to North Wall Option C



Client

Dublin Cables Project

Title
Emerging Best Options
Finglas to North Wall
Option C

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5.5.1 Summary of Optimised Route Option 3 MCA Results

The overall risk ranking of this optimised route was mid-level / moderate risk (dark green). The breakdown showing the section level output is shown in Table 5-3.

Table 5-4: Multi-criteria assessment results of Optimised Route Option 3

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental	Average
A-AP	0.8	M50 crossing; North Park; Off Rd; Casement Rd	Green	Green	Green	Green	Green	Green
AP-G	2.6	Casement Rd; Cardiff Castle Rd; Finglaswood Rd; Cappagh Rd; Patrickswell Pl; Off Rd	Green	Green	Green	Green	Green	Green
G-K	0.4	Off Rd (Tolka Valley Park)	Green	Green	Green	Green	Green	Green
K-M	0.3	Broombridge Rd	Yellow	Green	Green	Green	Yellow	Green
M-S	2.1	Royal Canal Greenway	Green	Blue	Green	Green	Blue	Blue
S-AE	2.4	Royal Canal Greenway	Green	Green	Green	Green	Green	Green
AE-AF	0.4	Royal Canal Greenway; Royal Canal crossing onto Irish Rail Land	Blue	Green	Green	Green	Blue	Blue
AF-AH	0.6	Dock Rd	Green	Blue	Green	Green	Yellow	Green
AH-AJ	0.8	Sheriff Street Upper; East Wall Rd	Yellow	Green	Green	Green	Yellow	Green
AJ-AK	1.0	Alexandra Rd	Green	Green	Green	Green	Yellow	Green

5.5.2 Outstanding Challenges of Optimised Route Option 3

There are several outstanding challenges on this route option that would need to be addressed with further investigation and design. They are as follows:

- Crossing of M50 (Section A-B)
 - Design of the HDD crossing
- Crossing of Tolka River (Section G-K)
 - Design of the HDD crossing
- Crossing of railway bridges (Section M-S)
 - Reliance on Royal Canal greenway phase 4 upgrades
- Crossing of Royal Canal (Section AE-AF)
 - Design of the HDD crossing
 - Location of HDD launch/reception site on Irish Rail land
- Location of circuit in Alexandra Road to minimise impact on railway lines (Section AJ-AK)

5.6 Optimised Route Option 4

Optimised Route Option 4 is shown in Figure 5-6. This route option is 13.3km.

Optimised Route Option 4 commences at the Finglas substation and crosses under the M50 using the service tunnels at the M50/R135 junction. The route travels east along Charlestown Place, Melville Road, Poppintree

Park Lane and Balbutcher Lane. At the junction with the R108 (Ballymun Road), the route travels south on the R108.

Where the route meets R102 (Griffith Avenue), the route turns east until it reaches Malahide Road which it follows in a southerly direction. At the end of Malahide Road, the route turns east onto Clontarf Road.

The route follows Clontarf Road until it reaches the car park on the southern side of the road. At this point, the route crosses the Tolka River Estuary, likely using HDD as the crossing methodology. On the southern bank, the route follows Bond Road, East Wall Road and Alexandra Road until it reaches the North Wall substations.

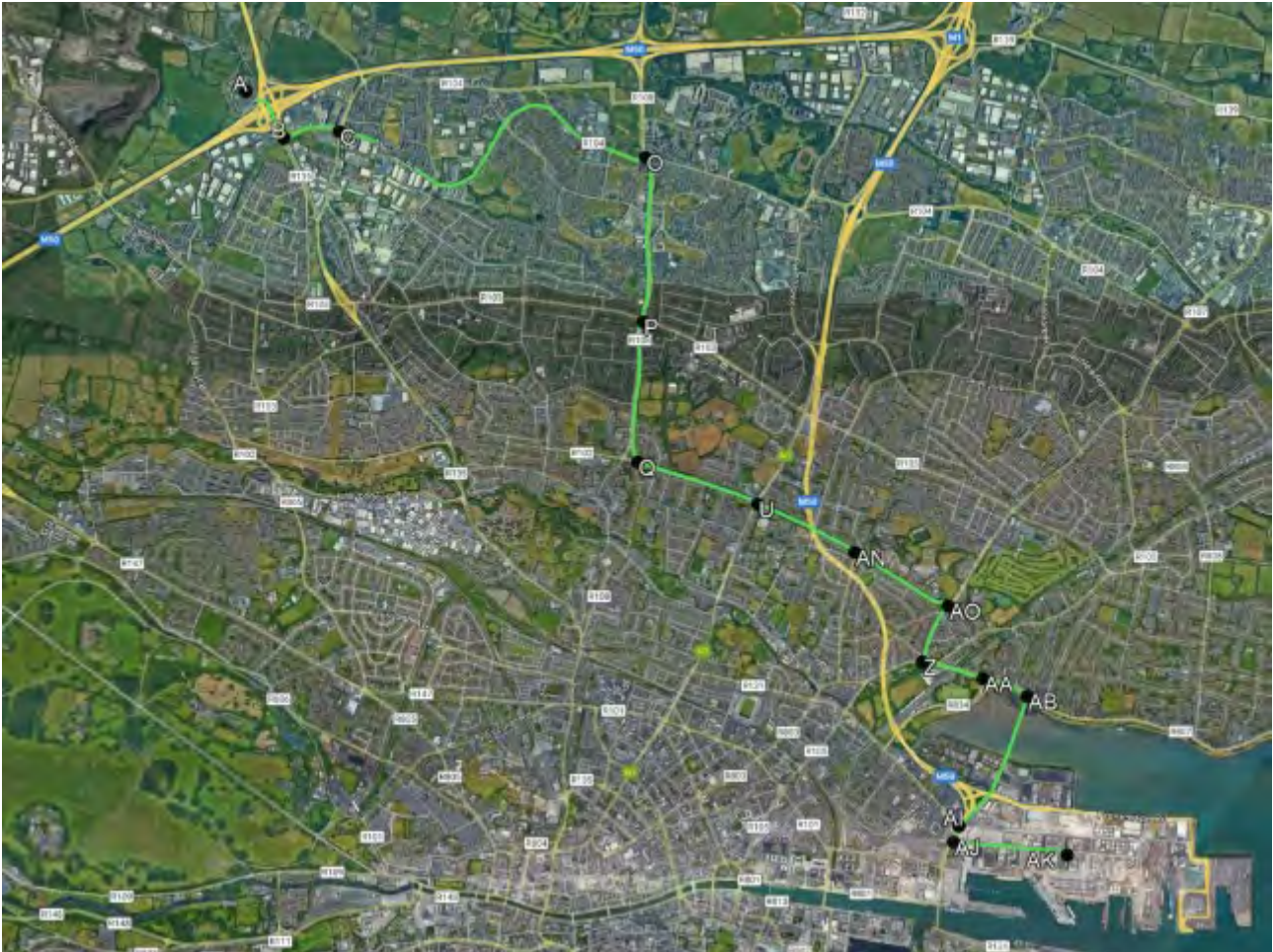


Figure 5-6: Map of Optimised Route Option 4

5.6.1 Summary of Optimised Route Option 4 MCA Results

The overall risk ranking of this optimised route was low moderate risk (light green). The breakdown showing the section level output is shown in Table 5-5.

Table 5-5: Multi-criteria assessment results of Optimised Route Option 4

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental	Average
A-B	0.4	Service tunnels under M50; N2	Blue	Green	Light Green	Yellow	Yellow	Light Green
B-C	0.5	Charlestown PI	Yellow	Light Green	Light Green	Light Green	Yellow	Yellow
C-O	3.1	Melville Rd; Poppintree Park Lane; Balbutcher Lane	Yellow	Green	Light Green	Green	Light Green	Light Green

Section	Section Length (km)	Road Names	Technical	Deliverability	Economic	Socio-Economic	Environmental	Average
O-P	1.4	Ballymun Rd	Yellow	Green	Light Green	Blue	Yellow	Light Green
P-Q	1.2	Ballymun Rd	Light Green	Green	Light Green	Green	Light Green	Light Green
Q-U	1.0	Griffith Ave	Yellow	Green	Light Green	Green	Light Green	Light Green
U-AN	0.9	Griffith Ave	Yellow	Green	Light Green	Green	Light Green	Light Green
AN-AO	0.9	Griffith Ave	Yellow	Green	Light Green	Green	Light Green	Light Green
AO-Z	0.5	Malahide Road	Yellow	Green	Light Green	Green	Light Green	Light Green
Z-AA	0.5	Clontarf Rd	Light Green	Green	Light Green	Green	Light Green	Light Green
AA-AB	0.5	Clontarf Rd	Light Green	Light Green	Light Green	Green	Light Green	Light Green
AB-AI	1.2	Clontarf Rd; Estuary Crossing; Bond Rd; Promenade Rd	Green	Green	Light Green	Light Green	Blue	Blue
AI-AJ	0.2	East Wall Rd	Yellow	Light Green	Light Green	Light Green	Yellow	Yellow
AJ-AK	1.0	Alexandra Rd	Light Green	Green	Light Green	Light Green	Yellow	Light Green

5.6.2 Outstanding Challenges of Optimised Route Option 4

There are several outstanding challenges on this route option that would need to be addressed with further investigation and design. They are as follows:

- Crossing of M50 (Section A-B)
 - Space in service tunnels under M50 or HDD crossing
- Mature trees on Griffith Avenue may impede construction (Multiple Sections: Q-U; U-AN, AN-AO)
- Location of circuit in Malahide Road (heavily congested road) (Section V-Z)
- Crossing of Tolka River (Section AB-AI)
 - Space for and design of HDD crossing at this point
 - Use of the area as a public amenity.
- Location of circuit in Alexandra Road to minimise impact on railway lines (Section AJ-AK)

6 EMERGING BEST PERFORMING ROUTES

The four optimised routes created after the multi-criteria assessment, and outlined in Chapter 5, were assessed to determine the Emerging Best Performing routes to progress to the Best Performing Option Report.

Optimised Route 1 will be progressed for further consideration, and from here will be labelled **Option A**.

Option A has been selected due to the advanced ducting being placed along the Royal Canal as part of the Royal Canal upgrades phase 3. This will greatly assist the deliverability of this route. The factors driving up the risk ranking of the deliverability and economic sections are the utility congestion and utility diversion requirements. Both of these sub-criteria will be reduced by site investigation works to inform the cable routing through areas of high congestion.

For Option A, both the technical and environmental criteria are ranked as low-moderate risk. The socio-economic higher risk ranking of mid-level/moderate is being driven by the duration of the works and traffic and transport effects, mainly on Finglas Road. Finglas Road is mostly dual carriageway, with two to three lanes in each direction, so with well-designed traffic management during construction, part of this risk can be minimised.

Optimised Route 2 will also be progressed, and will be labelled **Option B**.

Option B overall, and in most of the criteria, was ranked as low-moderate risk. The deliverability and socio-economic criteria are rated higher as mid-level/moderate risk. The main pinch point of this route option is the congestion on Malahide Road, with some areas of high utility congestion. With site investigations, this risk can be managed. The driver of the higher socio-economic criteria is the duration of the works and traffic and transport. As with Route Option A, with well-designed traffic management during construction, part of this risk can be minimised.

Optimised Route Option 3, further known as **Option C**, will also be progressed for further consideration. The main pinch point of this route is the uncertainty of the timing of the Royal Canal greenway phase 4 upgrades, and the high-risk level of this Section M-S (dark blue: high-risk) without the improved deliverability that the greenway upgrades would offer. The advantage of this route is the large sections of off-road routing which travels through open spaces in Finglas. This will reduce the impact of construction on traffic and transport.

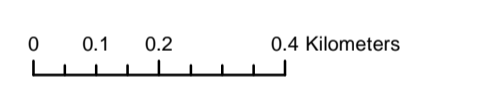
Due to the concerns around the HDD crossing, **Optimised Route Option 4** will not be progressed for further consideration at this time. If there is no space in at the crossing point of the Liffey River in Route Option B, this crossing option may be revisited as it then becomes a more viable alternative.

A map showing Option A, Option B and Option C is on page 53.



Legend

- Finglas to North Wall Option A
- Finglas to North Wall Option B
- Finglas to North Wall Option C



Client



Dublin Cables Project

Title

Emerging Best Options
Finglas to North Wall



Issue Details

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7 NEXT STEPS

This Route Options Assessment report will be published for public consultation. Any feedback received during the eight-week consultation will be considered in the project design moving forward.

EirGrid are also engaging through a Business Forum and Community Forum. Both forums will meet twice during the public consultation and the feedback received at each forum will also influence design where possible.

In addition to the feedback received from the consultation activity, a campaign of non-invasive investigations (such as Ground Penetrating Radar) will be performed to identify areas of high utility congestion, as well as limited invasive site investigations (such as slit trenches and H trenches) to validate the desktop designs. This approach informs and underpins the ongoing design, and in doing so reduces the risk of unexpected issues encountered during the construction phase.

Feedback and investigations are expected to iterate the design which may include sections that have previously been assessed but ranked sub optimally during the Multi Criteria Assessment. These alternative sections have been subjected to the same scrutiny as all other route sections in order to provide this flexibility and are expected to enable minimal deviation from the proposed route options.

The next publication for this project is the Best Performing Option report. This report will contain the additional design and investigative work detailed above.