

1 INTRODUCTION

This chapter of this environmental impact statement (EIS) introduces the proposed development and documents the procedure that was followed in preparing this EIS.

1.1 The Applicant

The applicant for the planning application is Fingleton White (FW), applying on behalf of the developer - Independent Pipeline Company Ltd whose main shareholders are Fingleton White and Reynolds Logistics.

FW is an engineering company with a record of management, design and construction of petroleum oil and gas infrastructure. The company was formed in 1981 and since then has been involved in many significant projects in the energy sector, in particular power generation. FW was the first company to sell CHP electricity in Ireland and the first licensee of the Commission for Energy Regulation.

FW has been involved in the design, construction and operation of a range of infrastructural projects, e.g. a 16,000 Mega Watt (MW) gas station, hydroelectric stations, combined heat and power plants (CHP), water, oil and gas pipelines, refrigeration systems, boiler houses, district heating and broadband communication networks.

Reynolds Logistics is the largest road distribution company for oil products in Ireland. They currently transport by tanker 60% of the aviation fuel from Dublin Port to Dublin Airport. Their management service covers the entire fuel supply chain including warehousing, packed distribution, tank farm operations, interplant operations and customer deliveries. Reynolds Logistics holds the ISO 14001 environmental standard from the National Standards Authority of Ireland (NSAI).

FW has designed, constructed, commissioned and provided operational services on several significant installations involving pipelines including:

- 14 No. CHP stations each involving approximately 5 km of high pressure pipelines ranging in size up to 500 mm and pressure up to 100 bar
- 15 No. hydroelectric power stations with the longest pipeline 1.5 km in length, 500 mm diameter operating at 20 bar
- 600 mm diameter natural gas pipeline from Belfast to Derry: total length 120 km
- 600 mm diameter natural gas pipeline from Curraleigh West to Midleton: total length 47 km
- 600 mm diameter gas pipeline from Lockerley to Marchwood UK: total length 20 km
- 300 mm diameter natural gas pipeline from Cork to Ballineen: total length 65 km
- Design and construction of gas pressure reduction and metering stations: 160 No.
- Vapour Recovery Installations for oil terminals in Dublin, Cork and Galway.

1.2 The Development in Summary

The 14.4 km proposed pipeline will transport aviation fuel from Dublin Port to Dublin Airport as indicated on Figure 1.1. In summary the route is as follows:

- Dublin Port
- Tolka Quay Road
- East Wall Road to the junction with the John McCormack Bridge
- Tolka River crossing
- Alfie Byrne Road
- Clontarf Road, Howth Road
- Copeland Avenue, Malahide Road (R107)
- Malahide Road (R139)
- Clonsaugh Road North
- AUL/FAI Sports Grounds
- M1 Crossing, DAA Long Term Car Park (Red)
- ALSAA Sports Complex
- Corballis Road and Dublin Airport.

The inlet and reception stations are existing facilities which will be modified to accommodate the proposed pipeline.

The proposed route traverses two local authority functional areas – namely Dublin City Council (DCC) and Fingal County Council (FCC). Consequently two planning applications will be made simultaneously to each planning authority. Each application will be accompanied by a planning report, environmental impact statement (EIS) and a Natura Impact Statement (NIS).

This type of development is not a new concept and is in operation in UK and European cities including Heathrow, Gatwick, Birmingham, Manchester, Amsterdam, Frankfurt, Brussels, Zurich and Luxembourg. Some of these pipelines have been in operation since the 1950s. The major oil companies currently operating in Ireland use these UK and European pipelines. Pipelines are used in these instances as a transport mode, to ensure that the fuel supply chain is both safe and flexible.

The pipeline will be located predominantly within the road carriageway along its route. A short section of pipeline will be located along the Athletic Union League- Football Association of Ireland (AUL- FAI) Sports Complex at Clonsaugh. There will also be seven crossing points of watercourses including the Tolka, Santry, Mayne, Wad and Naniken Rivers and the Cuckoo and Kilbarrack Streams.

Temporary construction compounds will be required for the duration of the construction phase. Two potential sites have been identified at Dublin Port and in the Malahide Road which are existing vacant sites.

The application is for a 10 year permission within a planning corridor, to include road, footway and verges. Where the route passes through green areas and private amenity areas the planning corridor will be 8 m in width. This is to allow micro-siting of the pipeline during construction.

The pipeline will be operated using a telemetry system. The pipeline will be operated by Fingleton White with standby backup provided by Reynolds Logistics in the form of trucks which will be made available to transport fuel to the airport in the event of a loss of the pipeline. Both companies currently operate 24/7 response systems.

The pipeline will be protected from excessive leakage in the event of a rupture by the use of two intermediate or isolation valves. The pipeline will also be fitted with a leak detection system so that early preventative action can be taken in the event of any leak. In addition, a fibre optic communications cable will be laid above the pipeline which will have a secondary function in detecting third party interference of the pipeline.

1.3 Planning History

FW received permission in 2001 from Dublin City Council (planning ref 0189/00) and Fingal County Council (F99A/0063) for the construction of a 150 mm diameter pipeline for the transport of aviation fuel along the following route:

- Branch Road North
- Tolka Quay Road
- East Wall Road
- Alfie Byrne Road
- Fairview Park
- Fairview
- Marino Mart
- Marino Park Avenue
- Marino Park
- Croydon Park Avenue
- Croydon Terrace
- Griffith Avenue
- Swords Road
- Airport Service Road.

An environmental report rather than an environmental impact statement (as the development was sub-threshold for a mandatory EIS) accompanied the application.



Legend

— Aviation Fuel Pipeline
 — Preferred Route

Date	10/06/2014
Name of Client	Fingleton White
Name of Job	EIS for Aviation Fuel Pipeline between Dublin Port - Dublin Airport
Title of Figure	Proposed Pipeline Route
Scales Used	1 : 50,000 @ A4
Figure No.	1.1
Rev	E

FEHILY TIMONEY & COMPANY
 CONSULTANTS IN ENGINEERING & ENVIRONMENTAL SCIENCES

Unit 16, Third Floor, NorthPark Office, North Park, Dublin 11, Ireland
 T: +353 1 4885002 F: +353 1 4885001
 W: www.fehilytimoney.ie E: info@ftco.ie



The Dublin City grant was subject to third party appeal to An Bord Pleanála (ABP). ABP upheld the decision of Dublin City Council (Planning ref PL29N.122692) as it considered that:

"...subject to compliance with the conditions set out in the Second Schedule, the proposed development would not seriously injure the amenities or property along the route of the proposed pipeline and would be acceptable in terms of the risk of environmental pollution. The proposed development would, therefore, be in accordance with proper planning and development of the area".

1.4 The Application Process and Requirement for Environmental Impact Assessment

The Planning and Development Act 2000 was amended in 2006 to require applications for planning permission for major infrastructure projects to be made directly to An Bord Pleanála rather than to the local planning authority, as would have previously been the case.

Section 3 of the 2006 Act inserts a new Section 37A into the Principal Act:

"Section 37A.—(1) An application for permission for any development specified in the Seventh Schedule shall, if the following condition is satisfied, be made to the Board under section 37E and not to a planning authority".

In order to fall within the provisions of the new Section 37A, a proposed development must be of a class specified in the Seventh Schedule to the Principal Act and the conditions in Section 37A(2) of the Principal Act must be satisfied.

Paragraph 1 of the Seventh Schedule, as amended, specifies, inter alia, the following class of development:

"An oil pipeline and any associated terminal, buildings and installation, where the length of the pipeline (whether as originally provided or extended) would exceed 20 kilometres."

The conditions in Section 37A (2) are that:

37A (2)... *"following consultations under Section 37B, the Board serves on the prospective applicant a notice in writing under that section stating that, in the opinion of the Board, the proposed development would, if carried out, fall within one or more of the following paragraphs, namely—*

- (a) the development would be of strategic economic or social importance to the State or the region in which it would be situate,*
- (b) the development would contribute substantially to the fulfilment of any of the objectives in the National Spatial Strategy or in any regional planning guidelines in force in respect of the area or areas in which it would be situate,*
- (c) the development would have a significant effect on the area of more than one planning authority."*

Having identified a preferred route in 2008 (which has subsequently been amended), Fingleton White commenced pre-application consultation with ABP in December 2009 (PL29N.PC0088) to determine if, in fact, the development was deemed to be strategic infrastructure, in accordance with the above criteria. A decision by ABP in August 2010 determined that the proposed development was not strategic infrastructure as it did not come within the scope of the Seventh Schedule as the proposed route was less than 20 km in length. Given that the route which is the subject of this EIS is also less than 20 km it too does not come within the scope of Schedule 7.

The requirement for the preparation of an EIS is set out in the European Union Directive 2011/92/EU *on the assessment of the effects of certain public and private projects on the environment*. This requires member states to ensure that a competent authority carries out an assessment of the environmental impacts of certain types of project, as listed in the Directive, prior to development consent being given.

With respect to pipelines, Annex 1 states that a mandatory EIS is required for:

"Pipelines with a diameter of more than 800 mm and a length of more than 40 km:

- For the transport of gas, oil, chemicals, and,*
- For the transport of carbon dioxide (CO₂) streams for the purposes of geological storage, including booster stations."*

Annex 2, meanwhile includes:

"Oil and gas pipeline installations and pipelines for the transport of CO₂ streams for the purposes of geological storage (projects not included in Annex 1)."

The requirements of this Directive have been transposed into Irish law by the Planning and Development Regulations 2001 as amended.

As the proposed pipeline is 14.4 km in length, neither Annex 1 nor Annex 2 apply. However, given the characteristics of the proposed development, through urban areas and under the Tolka River which drains to a number of Natura 2000 sites, an EIS was requested by the planning authorities under Article 103 of the Regulations. This provision allows a local authority to request an EIS for a sub-threshold development if the planning authority *"considers that the development would be likely to have significant effects on the environment"*.

With the planning application being accompanied by an EIS, the application will be made to the planning authorities under Section 172 of the Planning and Development Act 2000 as amended.

1.4.1 Additional Consents

A number of other consents will be required for the proposed development. These will include a foreshore licence from the Department of the Environment, Community and Local Government (DoEGLG) for the proposed crossing of the Tolka River and road opening licence(s) from DCC and FCC for works within the public roadway.

1.5 Technical Difficulties

There were no technical difficulties encountered during the preparation of this environmental impact statement.

1.6 EIS Structure

This document has been structured according to the grouped format structure as set down in the Environmental Protection Agency's (EPA) *Guidelines on the Information to be Contained in Environmental Impact Statements* (2002).

The EIS is broken down into the following chapters:

- A description of the existing and proposed development
- Subsequent chapters deal with specific environmental topics for example, human beings, air, water etc. The grouped format examines each topic as a separate section referring to the existing environment, impacts of the proposed development and mitigation measures
- A concluding chapter which provides a summary of the key impacts and mitigation measures and provides an overall conclusion to the EIS.

The advantages of using this type of format are that it is easy to examine each environmental topic and it facilitates easy cross-reference to specialist studies undertaken as part of the assessment.

The EIS comprises of three volumes:

- Volume 1:** Non-Technical Summary
- Volume 2:** Main Report
- Volume 3:** Appendices

1.7 Contributors to this EIS

Fehily Timoney and Company (FTC) was appointed by FW to prepare the EIS for the proposed development. A number of sub-consultants/specialists were retained to prepare specific studies namely:

- Abacus Transportation Surveys – traffic counts
- AMEC UK – safety and environmental impact evaluation
- Auveen Byrne & Associates – planning specialists
- Byrne Environmental & Associates – vibration
- Contact Nature – winter bird survey
- GMC – traffic management and construction
- Dermot Nelis Archaeology – archaeology, architecture and cultural heritage
- Fingleton White– design basis, route selection and emergency response.

1.8 Viewing and purchasing the EIS

Any member of the public can view the planning application and accompanying EIS and NIS documentation, free of charge, at the Planning offices of DCC and FCC during office hours.

The planning authorities will, on request, provide copies of any part of a planning application or EIS, at a fee not exceeding the reasonable cost of making a copy.

2 BACKGROUND TO THE PROJECT

2.1 The Need for the Project

Dublin Airport is a gateway of prime importance to the island of Ireland. It serves incoming and outgoing commercial passenger and freight travel, incoming and outgoing tourist and leisure passenger travel. It is of high level importance to the Irish economy and to Irish society.

Currently, aviation fuel supplies for Dublin Airport are transported from Dublin Port to Dublin Airport via road tankers. The largest permitted road tankers are used, each having a capacity of 40,000 litres. At the current demand for fuel this equates to over 15,000 tanker trips per year on a continuous 24 hour – 7 days a week rota. It is estimated that some 200,000 litres of diesel fuel are used each year by the tankers transporting the fuel, which equates to an annual emission of 500 tonnes of CO₂.

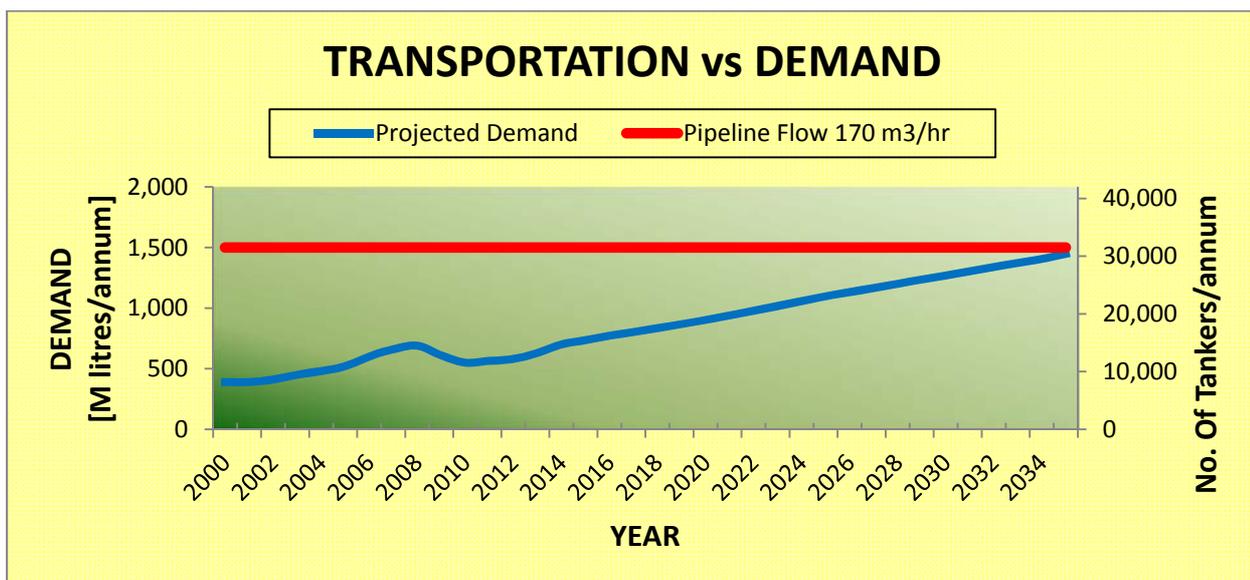
The pipeline is designed to replace the existing road delivery system. Fuel will be pumped from existing tanks at Dublin Port to storage tanks at Dublin Airport.

The Greater Dublin Area Draft Transport Strategy 2011 – 2030 states that in the Greater Dublin Area (GDA) there are two international gateways, namely Dublin Airport and Dublin Port and that the role and function of these facilities is of critical national importance and the management of transport to and from these locations needs to be considered at a regional level to ensure their efficient operation.

The transportation of petroleum products by tanker along busy commuter roads raises a number of health and safety issues. A safety and environmental impact evaluation conducted by AMEC UK Limited (Appendix 2.1 of Volume 3 of the EIS) concluded that the operation of the proposed pipeline has a significantly lower level of risk than the alternative use of road tankers.

From an economic perspective, the pipeline provides a sustainable and secure means of fuel supply for Dublin Airport. Passenger figures at the airport have continued to rise steadily since 2009, reaching 20.2 million in 2013 which constitutes a 6% increase and is well ahead of the European Union average increase of 1%. Significant new capacity was secured for Dublin Airport for 2014, in terms of summer long-haul and short-haul services. This includes a 17% increase in capacity to North America and a major planned expansion in capacity to the Middle East (2013 Annual Report). Dublin Airport Authority (DAA) predicts a further increase in passenger numbers to 28 million by 2018. By 2030, this is anticipated to have reached 40 million.

The current fuel usage at the airport is 630 million litres per annum (2013) which is projected to grow (high demand Scenario) to 1,450 million litres by year 2035 as indicated in Figure 2.1. For an equivalent flow of 1,500 million litres per annum the pipeline will be delivering 170 m³ per hour at an operating pressure of 16 – 20 bar.



Source: FW

Figure 2.1: Transportation vs Demand

The design of the pipeline will cater for both current and future proposed storage capacities.

2.2 Alternatives

2.2.1 Introduction

The following extract is provided from the EPA's 'Guidelines on the Information to be contained in Environmental Impact Statements' (March 2002):

2.4.3 ALTERNATIVES

"The consideration of alternative routes, sites, alignments, layouts, processes, designs or strategies, is the single most effective means of avoiding environmental impacts. The acceptability and credibility of EIA findings can be significantly affected by the extent to which this issue is addressed. For linear projects, such as roads and power lines, alternative routes may be the most important and effective mitigation strategy while for major infrastructure projects the intrinsic suitability of the site is the principal amelioration strategy. However, it is important, from the outset, to acknowledge the existence of difficulties and limitations when considering alternatives. These include: -

Hierarchy

EIA is only concerned with projects. Many projects, especially in the area of public infrastructure, arise on account of plans, strategies and policies which have previously been decided upon.

It is important to acknowledge that in some instances neither the applicant nor the competent authority can be realistically expected to examine options which have already been previously determined by a higher authority (such as a national plan or regional programme for infrastructure or a spatial plan).

Non Environmental Factors

EIA is confined to the environmental effects which influence the consideration of alternatives. It is important to acknowledge that other non-environmental factors may have equal or overriding importance to the developer, e.g. project economics, land availability, engineering feasibility, planning considerations.

Site Specific Issues

The consideration of alternatives also needs to be set within the parameters of the availability of land (it may be the only suitable land available to the developer) or the need for the project to accommodate demands or opportunities which are site specific. Such considerations should be on the basis of alternatives within a site e.g. design, layout."

3.2.2 ALTERNATIVES

"The presentation and consideration of the various alternatives investigated by the applicant is an important requirement of the EIA process.

Thus an outline of the main alternatives examined throughout the design and consultation processes is described. This serves to indicate the main reasons for choosing the development proposed, taking into account the environmental effects. For the purposes of the Regulations, alternatives may be described at three levels:-

- *Alternative Locations*
- *Alternative Designs*
- *Alternative Processes."*

With cognisance to the guidelines provided above, alternatives in relation to the aviation fuel pipeline project are considered under the following headings:

- Alternative route corridors
- Alternative construction technology
- 'Do-nothing' alternative

2.2.2 Alternative Route Corridors

This section should be read in conjunction with the route corridor selection report which is included in Appendix 2.2 of Volume 3 of the EIS.

Since 2008, the applicant has, in consultation with both local authorities, investigated a number of alternative route corridor options. Each option has been assessed from an environmental (including health and safety), planning and economic perspective. This included a review of the 2001 consented pipeline design and route which highlighted a number of changes that had taken place in the intervening period. These included:

- An increase in fuel demand resulting in the requirement for an increase in the diameter of the proposed pipeline from 150 mm to 200 mm
- Increased underground services (water, sewerage, gas, telecommunications etc.) congestion in the Dublin City area in particular
- Increased traffic congestion in Dublin City
- Relaxation of the restrictions imposed during construction of the Port Tunnel which now allowed routes in the vicinity of the tunnel to be considered.

As both the inlet and reception stations are fixed, the assessment focused on the most appropriate route corridor between these points. The 'pipeline route corridor' was defined so as to include:

- Road, footpaths and verges where the pipeline was located in public roadway
- An 8 m wide strip where the route passed through green areas and private amenity areas.

The selection criteria used in the route development process was based on the following:

1. The Code of Practice for Pipelines – IS EN 14161 – Petroleum and natural gas industries – Pipeline transportation systems (ISO 123:2009 modified) Annex D which sets out the following criteria to be considered as part of a route selection process:

<ol style="list-style-type: none"> i. Public Health and Safety iii. Impact on Local Community v. Planning / Land Use issues/constraints vii. Pipeline Construction and Operation ix. Location of and Access to Block Valves 	<ol style="list-style-type: none"> ii. Proximity to Occupied Buildings iv. Impact on Wildlife / Habitats and Environmentally Designated Areas vi. Impact on Archaeology / Cultural Heritage Sites viii. Visual Impact x. Cost & Programming
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2. Desk top survey, including use of aerial photography and service records
3. Visual appraisal
4. Consultations with relevant stakeholders including:

<ol style="list-style-type: none"> i. DCC iii. Dublin Port Company v. Irish Rail vii. Various Service Providers 	<ol style="list-style-type: none"> ii. FCC iv. Dublin Airport Authority vi. NRA viii. Landowners
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5. AMEC Safety and Environmental Impact Evaluation

6. The Dublin City Council Route Feasibility Study Report prepared by RPS Group Ltd on behalf of Dublin City Council in March 2009. This report examined three routes:
- i. Route A - Dublin Port –Castle Avenue, Vernon Avenue, Sybil Hill Road, Brookwood Rise, Harmonstown Road, Edenmore, Stardust Memorial Park, Oscar Traynor Road, Clonshaugh Road, Dublin Airport
 - ii. Route B - Dublin Port, Tolka Quay Road, East Wall Road, Fairview Park, Malahide Road, Griffith Avenue, Whitehall, Santry, Northwood, Dublin Airport
 - iii. Route C - Dublin Port, Bull Wall, Golf Links access road, Causeway Road, James Larkin Road, Kilbarrack Road, Grange Road, Belcamp Lane, Clonshaugh Road, Dublin Airport.

While Route B was identified by RPS as “....not having environmental or private ownership constraints. The route has been substantially through the planning process. Despite the heavy traffic drawback Route B may well be the more deliverable route and within a satisfactory timeframe given the desirability of timely removal of tankers from the Port Tunnel”.

FW included the RPS report findings in their initial review. Subsequent detailed examination of the RPS Route B highlighted traffic volumes and service congestion (in consultation with the local authorities) on the Swords Road as a major constraint and as a consequence Route B was not considered further in the detailed assessment outlined below.

Detailed Assessment - Preliminary Routes

A total of six routes were assessed:

- **Option 1** - Dublin Port, Tolka Quay Road, East Wall Road, Poplar Row, Luke Kelly Bridge, Richmond Road, Grace Park Road, Griffith Avenue, Swords Road, Corballis Road and Dublin Airport
- **Option 2** - Dublin Port, Tolka Quay Road, East Wall Road to junction with Faith Avenue, Tolka River Crossing, Fairview Park, Malahide Road (R107), Griffith Avenue, Swords Road, Corballis Road and Dublin Airport
- **Option 3** - Dublin Port, Tolka Quay Road, East Wall Road to junction with Faith Avenue, Tolka River crossing, Fairview Park, Malahide Road (R107), Kilmore Road, Oscar Traynor Road, Clonshaugh Road (South), Malahide Road (R139), Clonshaugh Road (North), AUL/FAI Sports Grounds, DAA Long Term Car Park (Red), ALSAA Sports Complex, Corballis Road and Dublin Airport.
- **Option 4** - Dublin Port, Bond Drive, Promenade Road, Tolka Estuary Crossing, Clontarf Road, Castle Avenue, Howth Road, Collins Avenue East, Clanree Road, Malahide Road (R107), Kilmore Road, Oscar Traynor Grounds, M1 Crossing, DAA Long Term Car Park (Red), ALSAA Sports Complex, Corballis Road and Dublin Airport
- **Option 5** - Dublin Port, Tolka Quay Road, East Wall Road to the junction with the John McCormack Bridge, Tolka River crossing, Alfie Byrne Road, Clontarf Road, St Anne’s Park, Howth Road, Raheny Church car park, St. Malachy’s Park, Lough Derg Road, Springdale Road, St Malachy’s Park, Malahide Road (R107), Darndale, Moatview, Belcamp Park, Malahide Road (R139), Clonshaugh Road (North), AUL/FAI Sports Grounds, M1 Crossing, DAA Long Term Car Park (Red), ALSAA Sports Complex, Corballis Road and Dublin Airport
- **Option 6** - Dublin Port, Tolka Quay Road, East Wall Road to the junction with the John McCormack Bridge, Tolka River crossing, Alfie Byrne Road, Clontarf Road, Howth Road, Copeland Avenue, Malahide Road (R107), Malahide Road (R139), Clonshaugh Road North, AUL/FAI Sports Grounds, M1 Crossing, DAA Long Term Car Park (Red), ALSAA Sports Complex, Corballis Road and Dublin Airport.

Figure 2.2 overleaf shows the route of each of the six options.



Legend

- Aviation Fuel Pipeline - Selected Route
- Pipeline Route Options**
- ROUTE OPTION 1
- ROUTE OPTION 2
- ROUTE OPTION 3
- ROUTE OPTION 4
- ROUTE OPTION 5
- ROUTE OPTION 6

Date	24/10/2014
Name Of Client	Fingleton White & Co. Ltd
Name Of Job	EIS for Aviation Fuel Pipeline between Dublin Port - Dublin Airport
Title Of Figure	Aviation Fuel Pipeline Route Options
Scale Used	1:50,000 @ A4
Figure No.	2.2
Rev	A

FEHILY TIMONEY & COMPANY
 CONSULTANTS IN ENGINEERING & ENVIRONMENTAL SCIENCES
 10th Floor, 15 Plaza, North Park Business Park, Dublin 11, Ireland.
 T: +353 21 4969133 F: +353 21 4464
 W: www.fehilytimoney.ie E: info@ftco.ie



DUBLIN HARBOUR

The selection criteria for each route option were entered into a matrix contained in Table 2.1. The characteristics of each route corridor in respect of each of the selection criteria were evaluated. A colour coding system was used to assist in the evaluation. This was:

- Dark Green - **Strongly Positive**
- Light Green - **Slightly Positive**
- No Colour - **Neutral**
- Orange - **Slightly Negative**
- Red - **Strongly Negative**

All potential route corridors had both positive and negative outcomes. Initial evaluation identified Options 3, 5 and 6 as having the least constraints.

The previously consented route (Option 1) was eliminated due to the traffic management difficulties at Luke Kelly Bridge and the proposed works on the R132.

Option 2 was eliminated from further consideration due to services congestion on the Swords Road. This would extend the construction period and could result in significant road closures. In addition the R132 upgrade was in the planning stage and works along this section were unacceptable to FCC.

Option 4 was eliminated because of construction through an SAC which would not be acceptable when there are other alternatives, and engineering difficulties associated with the railway crossing at Collins Avenue East.

Further assessment and ongoing discussions with stakeholders identified significant constraints with Options 3 and 5.

Option 3 constraints related to severe underground services congestion along a narrow section of the Clonshaugh Road. Existing services included 3 no. water mains, 2 no. PE natural gas mains, surface water and wastewater pipelines and electricity and telecoms serving the adjacent Grattan Business Park.

Option 5 was eliminated because the route traversed parks and amenity areas. The necessity to maintain a permanent way leave through these areas might curtail future park and amenity development and impact on the amenity value of these areas.

Appendix A - Route Selection Matrix
Dublin Port to Dublin Airport

Key to Colour Code		Strongly Positive	Slightly Positive	Neutral	Slightly Negative	Strongly Negative	
1	Criteria	Option 1	Option 2	Option 3	Option 4	Option 5	Option 6
	Public Health and Safety	km	km	km	km	km	km
	Traffic Impact	0	0	0.5	0.5	0.6	0.5
	Parks - Amenity	0	0.8	1.2	0.4	7.5	0
	TIN 3	0.8	1.8	5.2	8.5	4.2	4.9
	TIN 4	10.0	8.0	2.7	1.2	1.7	1.2
	TIN 5	0	0.5	2.2	0.4	3.5	7.8
	Route Length (km)	10.8	11.1	11.8	11.0	17.5	14.4
	Existing Services	High congestion	High congestion	High Congestion	High Congestion	Moderate congestion	Moderate congestion
	Proposed Developments	R132 Upgrade	R132 Upgrade	R132 Upgrade	R132 Upgrade	R132 Upgrade	R132 Upgrade
2	Width of Road	km	km	km	km	km	km
	2 Lanes or Less	4.2	2.1	6	7.0	2.4	1.3
	3 Lanes	2.2	2.6	1.5	1.5	1.3	2.3
	4 Lanes or more	4.5	5.6	2.2	0.4	1.4	8.2
	Impact on Local Community:	km	km	km	km	km	km
	Residential	5.5	5.0	8.0	7.0	3.0	8.0
	Commercial	1.0	1.0	1.0	1.0	0.6	2
	Parks - Amenity	0.0	0.8	1.2	1.0	7.5	0.0
	Industrial	2.0	2.0	2.0	1.0	0.8	1.0
	Schools / Hospitals etc.	8 No	12 No	9 No	8 No	10 No	13 No
3	Proximity to Occupied Buildings:	No.	No.	No.	No.	No.	No.
	<5m	0	8	16	8	0	11
	5 - 10m	88	18	32	42	18	17
	11 - 15m	125	89	113	139	119	135
	Planning / Land Use:	km	km	km	km	km	km
	Private Wayleaves	0	0	1 No	1 No	2 No	1 No
	Parks - Amenity	0	0.8	1.5	0.4	7.5	0.0
	Wildlife / Habitats and Environmentally						
	Designated Areas:						
	Crossing watercourses	7 No	7 No	7 No	6 No	7 No	7 No
Construction through NHA, SPA,	0	0	0	1 No	0	0	
6	Archaeology / Cultural Heritage:						
	Protected Structures	11 No	4 No	12 No	28 No	30 No	14 No
	Visual Impact:	2no above ground control cabinets for emergency shutdown valves	2no above ground control cabinets for emergency shutdown valves	2no above ground control cabinets for emergency shutdown valves	2no above ground control cabinets for emergency shutdown valves	2no above ground control cabinets for emergency shutdown valves	2no above ground control cabinets for emergency shutdown valves
	Pipeline Construction and Operation:	km	km	km	km	km	km
	Private	0	0	0.5	0.5	0.6	0.5
	Parks - Amenity	0	0.8	1.2	0.4	7.5	0.0
	TIN 3	0.8	1.8	5.2	8.5	4.2	4.9
	TIN 4	10.0	8.0	2.7	1.2	1.7	1.2
	TIN 5	0	0.5	2.2	0.4	3.5	7.8
	Special Engineering Difficulties	CIE Bridge East Wall Road, Luke Kelly Bridge, Port Tunnel, Griffith Avenue, M50 Underpass Swords Road, Santry River, Mayne River and Cuckoo Stream Swords Road & R132 Upgrade.	CIE Bridge East Wall Road, Tolka River, Port Tunnel, Fairview Park & Griffith Avenue, M50 Bridge Swords Road, Santry River, Mayne River and Cuckoo Stream, Swords Road & R132 Upgrade.	CIE Bridge East Wall Road, Tolka River, Port Tunnel, Fairview Park, Santry River, Mayne River and Cuckoo Stream, R139 and M1 crossings, Swords Road R132 Upgrade.	Tolka Esuary, CIE Bridge, Collins Ave East, Santry River, Mayne River and Cuckoo Stream, R139 and M1 crossings, Swords Road R132 Upgrade.	Tolka River, Port Tunnel, Aliffe Byrne Road, CIE Bridge, Clontarf Road, Santry River, Mayne River and Cuckoo Stream, M1 and Swords Road (R132) crossings.	Tolka River, Port Tunnel, Aliffe Byrne Road, CIE Bridge, Clontarf Road, Santry River, Mayne River and Cuckoo Stream, M1 and Swords Road (R132) crossings.
9	Location of and Access to intermediate Isolation Valves:	Richmond Road & Swords Road	Fairview Park & Collins Avenue	Fairview Park & Clonsillaugh Road	Clontarf & Clonsillaugh Road	Clontarf & Clonsillaugh Road	Malahide Road R172 and Malahide Road R139
	Cost & Programming:	(-) * Note 1	(+) €100k	(+) €800k	(+) €2.1M	(+) €3.8M	(+) €3.0M

*Note 1 Cost of Option 1 is the benchmark

Option 6 emerged as the preferred route for the following reasons:

- The route was technically feasible both from an engineering and construction point of view
- The route is predominantly located in the public road and does not directly impact on any public park or amenity areas
- 75% of the pipeline will be laid in roads with 3 lanes or more which reduces potential traffic congestion during construction works as well as impacts on receptors along the route (given greater separation distances)
- These are no direct impacts on designated sites and there is only one Record of Monument and Place (RMP) within the corridor.

2.2.3 Alternative Design Pipeline Construction Technology

An open-cut approach using trenching as outlined in Section 3 of this EIS is proposed. It is the standard method for the construction of a pipeline in urban areas. In more difficult locations, such as crossings of rivers and stream (open and culverted), trenchless techniques will be used to minimise environmental impacts of construction works at these locations.

2.2.4 Do-Nothing Scenario

In the event that the proposed development does not proceed, the existing unsustainable activity of transporting fuel by road tanker from Dublin Port to Dublin Airport on a daily basis will continue. This is considered unsustainable in the longterm because it is having negative impacts on the environment (greenhouse gas emissions), poses a health and safety risk (transporting fuel along busy commuter roads) and undermines the long-term viability of Dublin Airport (no secure supply of fuel to the Capital's airport). There are no other alternative modes of transport in the Dublin Area.

Continued transportation by road tanker will result in increased:

- Traffic congestion
- Greenhouse gas emissions and air pollutants
- Noise
- Accident risk
- Damage to public roads
- Potential for interruption of fuel supplies to the airport.