

Bracken Link Road Scheme

Part 8 Environmental Report

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Bracken Link Road

Environmental Report

July 2017

Department of Infrastructure and Climate Change

**Bracken Link Road
Environmental Report
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Non-Technical Summary

1.0 Introduction

This Environmental Report (ER) has been prepared by Dun Laoghaire Rathdown County Council (DLRCC) as part of the documentation to accompany a Part 8 planning process for the proposed Bracken Link Road to the Drummartin Link Road, and includes a new signalised junction where the two roads intersect. The ER documents the assessment of the impact of the proposed development on the environment in the vicinity of that development.

This non-technical summary summarises the outcome of the environmental assessment and highlights, in non-technical language, the main impacts of the proposed scheme.

2.0 Background to the Scheme

Development of the Sandyford area over the last two decades has resulted in the generation of significant volumes of traffic with resultant long traffic queuing on all roads leading into and out of Sandyford Business Park at peak times.

The Council has prioritised the construction of Bracken Link Road as an objective in the Sandyford Urban Framework Plan (SUFP), which forms Appendix 15 of the County Development Plan 2016-2022, to facilitate future development within the Sandyford Business District.

It is an objective of the SUFP that the planning approval process for the Bracken Link Road to the Drummartin Link Road (No.3) shall be complete and planning permission granted prior to further development being permitted for office based employment within Sandyford Business District that exceeds 164,000m² of the overall potential 350,000 sqm identified.

3.0 Description of Proposed Scheme

The development site is located in the Sandyford Business District adjacent to Drummartin Link Road and the Sandyford Rotary. The proposed development comprises: -

- The extension of the existing Bracken Road to connect with Drummartin Link Road
- A new signalised junction where the Bracken Link Road connects to the Drummartin Link Road.
- Improvements to pathways, cycleways and crossings and improvements to the quality of the public realm locally.
- Upgraded public lighting

4.0 Alternatives Considered

The route corridor proposed for the Bracken Link Road is very constrained due to adjacent developments and the proximity of the Sandyford Rotary. Therefore, all alternative alignments considered for this scheme were substantially the same and differed only in the area of land required.

5.0 Traffic

The Sandyford Transportation Study that informed on the preparation of the Sandyford Urban Framework Plan determined a road configuration that represents the absolute minimum level of new road infrastructure required to facilitate the future office development envisaged. This roads configuration was included in the Sandyford Urban Framework Plan as TAM18: Six-Year Roads Objectives and incorporates the following schemes: -

- Burton Hall Road Extension - **completed**
- Leopardstown Roundabout Reconfiguration - **completed**
- Leopardstown Link Road (with access to car parks in Central Park) – **completed (except for the access to Central Park car parks)**
- Direct access from M50 Junction 14 diverge ramp (the preferred option for which is to the ESB Link Road – **Part 8 Approved & CPO Approved**)
- Bracken Link Road – **Part 8 Process in Progress** (this scheme)
- Sandyford Orbital Quality Bus Corridors

This road is currently a cul de sac. Traffic analysis shows that providing the link road will add approx. 4,000 vehicles per day to this route. The road will mitigate congestion on the local road network, especially at the Drummartin Link Road / Blackthorn Drive and Blackthorn Drive/Blackthorn Road signalised junctions.

6.0 Impact on Human Beings

The area adjacent to the proposed road is a mix of brown field, commercial, open space and institutional land uses. Most existing development consists of Medical/Hospital facilities and warehouse type/light industrial developments. Future population growth in the area is an objective of the County Council Development Plan, and this will depend on the provision of new developments as envisaged by the Sandyford Urban Framework Plan. Improvements to the local transportation infrastructure as set out in the SUFP are a prerequisite to support the anticipated population growth in the area.

The proposed road will facilitate further residential and commercial development in the Sandyford area by mitigating congestion that would otherwise arise on the existing road network.

The proposed road scheme, in conjunction with other transportation initiatives will ensure that the area of Sandyford Business District will remain an attractive location for businesses. This will support demand for retail, commercial and professional services, thereby increasing local employment opportunities.

7.0 Environmental Issues

7.1 Noise and Vibration

During the construction phase of the project there will be some small impact on nearby properties due to noise emissions from site traffic and other activities. The transient nature of construction works, the application of binding noise limits and hours of operation, along with implementation of appropriate noise control measures, will ensure that noise impact is kept to a minimum.

The predicted noise level generated by the proposed road development during the operational phase is not expected to represent a significant increase on current noise levels in the area.

Ground vibrations produced by road traffic are unlikely to cause perceptible structural vibration in properties located near to well-maintained and smooth road surfaces.

7.2 Air Quality and Climate

The air quality in the vicinity of the Bracken Link Road will not be significantly affected by vehicle exhaust emissions.

7.3 Hydrology and Hydrogeology

The proposed scheme will have no impact on water quality. Attenuation measures will be installed to comply with sustainable urban drainage systems (SUDS) best practice.

7.4 Soil

The Bracken Link Road will have no impact on the soil along the scheme.

8.0 Ecology

There is no feature of significant interest in the flora and fauna of the site as all species are typical of the habitats and are very wide spread in similar areas.

9.0 Landscape and Visual Impacts

The proposed scheme will not have an adverse impact in its setting as the proposed road will marry the existing Bracken Road with the adjacent Drummartin Link Road.

10.0 Material Assets

The proposed scheme will require a permanent land area of approximately 0.565 hectares.

11.0 Architectural, Archaeological and Cultural Heritage

All works will take place, with only minor surface effects, either within the corridor of the existing road or directly adjacent to the existing road in land that is zoned for future development. Consequently there are no predicted impacts on architectural, archaeology and cultural heritage.

Archaeological monitoring will be undertaken during the earthworks activities.

12.0 Construction Phase

The construction of the road scheme will cause an increase in noise during working hours, but contract conditions will limit this noise to acceptable levels. Working hours will be limited, thereby avoiding the potential for disturbance of residents at night. The Contract will include requirements for appropriate measures to prevent an accidental spillage of pollutant materials into watercourses. The Contractor will be obliged to ensure that the surrounding roads are kept free from dirt. Construction traffic for the scheme will be directed to use main roads to access the site and residential areas will not be affected.

13.0 Mitigation Measures

The following is a summary of the mitigation measures that will be undertaken to reduce the potential environmental impacts of the proposed Bracken Link Road scheme:

- Noise control measures during construction will minimise disturbance to local residents.
- Machinery and compounds will be positioned, where possible, to avoid undue disruption.
- Pollution control measures will be taken to protect the surface water drainage system during construction.
- The contractor will be required to prevent dirt from being released onto public roads.
- Archaeological monitoring will be undertaken during the earthworks activities

14.0 Further Information

Copies of the full Part 8 Environmental report may be inspected at the following locations: -

Dun Laoghaire - Rathdown County Council,
County Hall,
Marine Road,
Dun Laoghaire,
Co. Dublin.

Dun Laoghaire - Rathdown County Council,
Dundrum Office Park,
Main Street,
Dundrum,
Dublin 14.

15.0 Planning Process

Section 179 of the Planning and Development Act 2000 as amended, and Part 8 of the Planning and Development Regulations, 2001 to 2011 set out the process to be used for planning approval of local authority projects that are not subject to a requirement for a formal Environmental Impact Statement under other relevant legislation. The planning approval process will involve a period of public consultation after which Dun Laoghaire - Rathdown County Council will review any submissions made by the public. The proposed scheme will be presented to the Elected Members where it may be accepted, either with or without amendments, and if so will proceed. Alternatively the Elected Members may reject the scheme in which case the proposed scheme will not proceed.

Chapter 1: Introduction

1.1 Introduction

This Environmental Report (ER) has been prepared by Dun Laoghaire Rathdown County Council (DLRCC) to accompany a planning application for the proposed Bracken Link Road (BRE), Dublin 18.

The recent and ongoing expansion and development of Sandyford Business District has placed pressure on the existing road infrastructure in the Sandyford area and there is a need for an improvement schemes that will facilitate further development in the Sandyford Business District. The proposed improvement scheme aims to mitigate against the increased traffic levels expected as a result of the further development envisaged by the Sandyford Urban Framework Plan, by providing a new and additional access and egress point to the Sandyford Business District.



The proposed Extension connects Bracken Road with Drummartin Link Road (approx. 170m north of the Sandyford Rotary).



Figure – Proposed Link Road

1.2 Planning Process

The planning for the proposed improvement scheme is undertaken in accordance with the legislative requirement in Part XI, Section 179 of the Planning & Development Act, 2000 as amended. Part 8 of the Planning

and Development Regulations, 2001 to 2011 details the class of development that is prescribed for the purposes of Section 179 of the Act and the relevant class for the proposed scheme is as follows:

b) "Construction of a new road or widening or realignment of an existing road, where the length of the new road or of the widened or realigned portion of the existing road, as the case may be, would be – in the case of a road in an urban area, 100 metres or more,"

Under Part 8 of the Regulations, the Local Authority is required to make details of the proposed road development available for public inspection and comment and to prepare a report in relation to the proposal for consideration by the elected members of the local authority. This Environmental Report (ER) contains information on the potential environmental impacts of the proposed scheme. It has been prepared in accordance with the information requirements of the Planning and Development Act (2000) and Planning and Development Regulations (2001).

The purpose of the ER is to identify the potential impacts the proposed scheme will have on the environment and to propose measures to avoid, reduce or remedy undesirable potential impacts as appropriate.

1.3 Legislative Requirement for an Environmental Impact Report

Article 8 of the Roads Regulations 1994 prescribes the types of proposed road development that require the preparation of an Environmental Impact Assessments as:

- Construction of a motorway.
- Construction of a new road of four or more lanes, or the realignment or widening of an existing road so as to provide four or more lanes, where such new, realigned or widened road would be 8km or more in length in a rural area or 500m or more in length in an urban area.
- Construction of a new bridge or tunnel, which would be 100m or more in length.

The proposed BRE will involve the provision of a 190 metres length of 7.0m to 10.5m wide single carriageway road and as such does not require the preparation of an Environmental Impact Statement under the relevant legislation. However it was decided by Dun Laoghaire Rathdown County Council to prepare an Environmental Report for this scheme to the standard of a full Environmental Impact Statement.

The ER is prepared having regard to the requirements of Section 50 of the Roads Act 1993 as amended.

Section 50 of the Roads Act and the Environmental Impact Assessment Regulations require that the following information be included in an EIS:

"A description of the proposed road development comprising information on the site, design and size of the proposed road development;

- A description of the measures envisaged in order to avoid, reduce and, if possible remedy significant adverse effects;*
- The data required to identify and assess the main effects which the proposed road development is likely to have on the environment;*
- An outline of the main alternatives studied by the road authority concerned and an indication of the main reasons for its choice, taking into account the environmental effects;*
- A summary in non-technical language of the above information.*

An environmental impact statement also requires, in addition to and by way of explanation or amplification of the specified information referred to above further information on the following matters:

A description of the physical characteristics of the whole proposed road development and the land-use requirements during the construction and operational phases,

An estimate, by type and quantity, of the expected residues and emissions (including water, air and soil pollution, noise, vibration, light, heat and radiation) resulting from the operation of the proposed road development.

A description of the aspects of the environment likely to be significantly affected by the proposed road development, including in particular-

- Human beings, fauna and flora,*
- Soil, water, air, climatic factors and the landscape,*
- Material assets, including the architectural and archaeological heritage, and the cultural heritage,*
- The inter-relationship between the above factors;"*

The Environmental Report has been prepared with regard to the above requirements. The format used in this Environmental Report document seeks to allow the reader to access the issues of interest to them as easily as possible.

Chapter 2: Background to Scheme

2.1 Objectives of the Proposed Road

The need for this proposed scheme has been identified in the Sandyford Land Use and Transportation Study 2006 (LUTS) and in the Sandyford Urban Framework Plan (SUFP) and Transportation background paper. These studies highlight the requirement for key road improvements in the area to facilitate the expected growth in traffic arising from the future development envisaged. The SUFP Transportation Strategy Background Paper concluded that the BRE will provide an additional and an alternative access and egress route to the Sandyford Business District.

The Sandyford Urban Framework Plan has planned for the increase in the working and living population within the area from an estimated 15,000 in 2006 to 40,000 in 2016 and to 55,500 by 2030. The traffic study carried out during the development of the SUFP determined that this growth requires, in the short term, to be supported by a number of additional elements of road and public transport infrastructure, including:

- M50 junction 14 diverge ramp access to Sandyford
- Revised access to South County Business Park (the Leopardstown Link Road) including an access to the car parks within Central Park
- The Bracken Link Road to the Drummartin Link Road
- Burton Hall Road Extension to Leopardstown Road
- ESB Link Road and Link to Arena Road
- Reconfiguration of the Leopardstown Roundabout
- Bus/Luas Interchange at the Stillorgan Luas stop
- Lower Kilmacud Road Quality Bus Corridor
- Internal circular Quality Bus Corridor
- Tallaght to Sandyford Quality Bus Corridor
- Cycling and Walking Routes

It is an objective in the SUFP that the planning approval process for the Bracken Link Road to the Drummartin Link Road (No.3) shall be complete and planning permission granted prior to further development being permitted for office based employment within Sandyford Business District that exceeds 164,000m² of the overall potential 350,000 sqm identified.

SUFP also states that no additional development will be permitted on the medical zoned lands adjacent to Bracken Road and Blackthorn Road until the Bracken Link Road is facilitated.

2.2 Recent Developments

The Council originally adopted the Sandyford Urban Framework Plan (SUFP) as Variation No.2 to the County Development Plan 2010-2016 at the Council meeting held on 12th September 2011. The SUFP is included as Appendix 15 in the CDP 2016-2022. The Bracken Link Road is a six-year roads objective and details the road reservation on the "Land Use Zoning" map. The construction of the proposed scheme is considered

essential to facilitate the future development within the Sandyford Business District.

2.3 Objectives of the Bracken Link Road

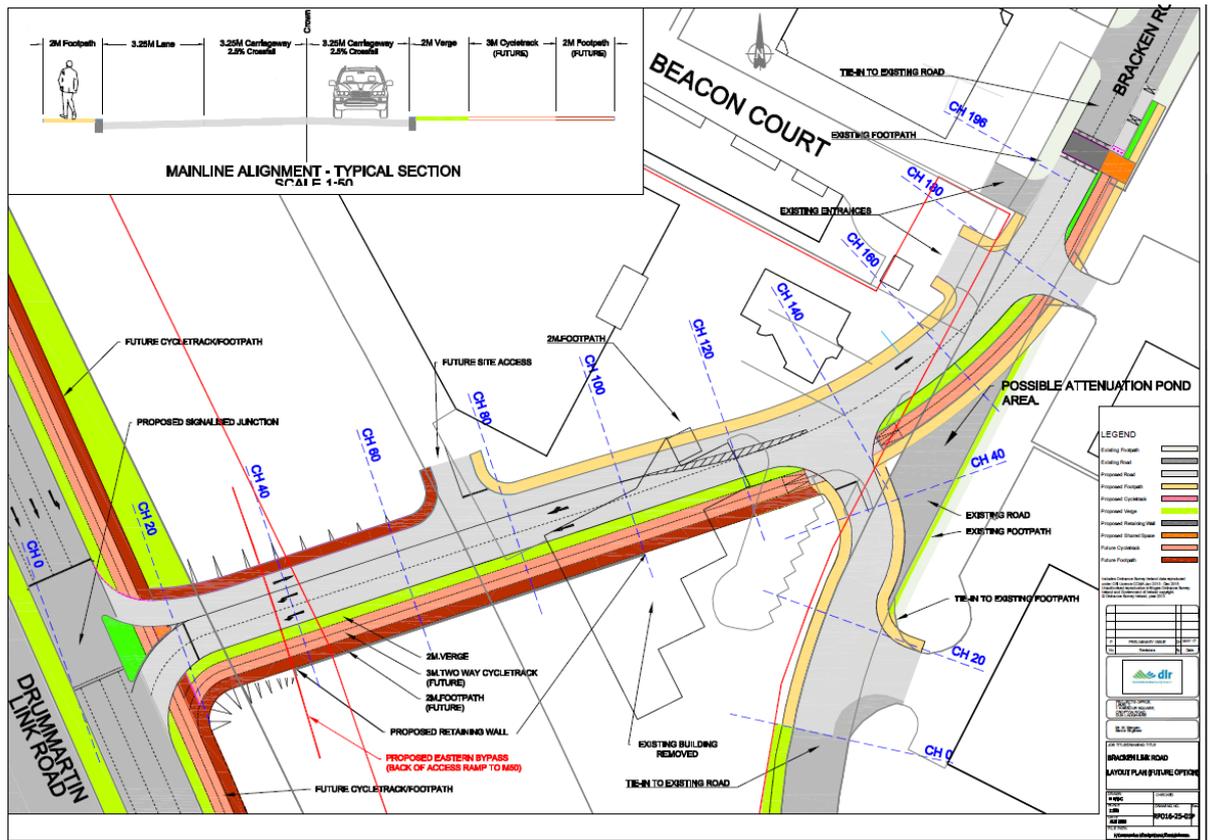
The key objectives of the Bracken Link Road are as follows:

- (a) To improve accessibility to the Sandyford Business District.
- (b) To provide direct alternative access route to and from the Sandyford Business District.
- (c) To mitigate traffic congestion at the existing Drummartin Link Road / Blackthorn Drive and Blackthorn Drive/Blackthorn Road signalised junctions.
- (d) To provide an alternative link between Sandyford Business District and both the northbound and south bound M50
- (e) To facilitate and support the expected growth in traffic arising from the future development envisaged by the Sandyford Urban Framework Plan (Appendix 15 of the County Development Plan 2016 – 2022).

Chapter 3: Description of Proposed Scheme

3.1 Road Layout

The route of the proposed Bracken Link Road is shown in the figure below on a background of aerial photography. The proposed road will connect Bracken Road with Drummartin Road via a continuous curve. The southern section of Bracken Road will be realigned to connect with the new Bracken Road at a T-junction.



The proposed road scheme is approximately 190 metres in length

Both the Bracken Road and Drummartin Link Road run generally north to south. The proposed road will initially follow the existing Bracken Road alignment and then turn west to connect to the Drummartin Link Road at a 90° angle.

The road will be a single three-lane carriageway with 50km/h design speed. The overall road reservation will be 22.5 metres wide not including side slopes for the embankment. The vertical alignment of the new road will connect the exiting Bracken Road level to the Drummartin Link Road which is approx. 4m higher.

3.2 Cycling and Walking Facilities

The Dun Laoghaire - Rathdown County Development Plan Policy T12 is to promote cycling and walking through the provision of cycle and pedestrian facilities in the design of public transport routes and road schemes.

There are no existing cycle lanes on Bracken Road or Drummartin Link Road. There is no footpath on Drummartin Link Road. Provision will be made so that cycle lanes and footpaths can be installed on Bracken Link Road when the planned cycle lanes for Drummartin Link Road are being constructed.

3.3 Public Lighting

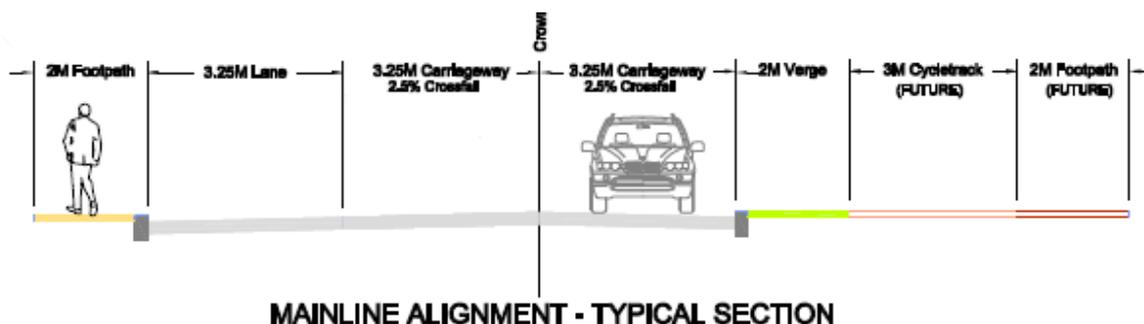
The public lights along the eastern side of the existing Bracken Road at approx 35 meter spacing. This lighting scheme will be extended onto the proposed link road. The details of the new lighting will be considered at the detailed design stage.

3.4 Drainage

The drainage arrangements may ultimately be influenced by the attenuation proposals for adjoining lands, however, a notional design has been proposed that can function and be constructed independently of the development of the adjoining lands. The areas beneath the verge and cycle track construction should be constructed of permeable materials to permit infiltration into the surrounding soils. A partially perforated pipe should be incorporated to allow the conduct of water when the infiltration zone reaches saturation. At the lower reaches, a pond will be formed to provide attenuation. The drainage will discharge to the Sandyford Stream. A hydrobrake will be installed to limit the rate of discharge to the stream and the upstream attenuating pipes sized accordingly.

3.5 Cross Sections

A typical cross section of the proposed road is shown in the figure below. The road will consist of three 3.25 metre general traffic lanes (2 lanes exiting), provision for 3.0 metre wide 2-way cycle lane on southern side of the link road with 2.0 metre wide footpaths on either side of the proposed link road. A 2.0m wide grass verge is proposed on the south side of the road.



Chapter 4: Alternatives Considered

4.1 Alternatives Considered

In developing the road strategy for the Sandyford Urban Framework Plan a number of alternative road configurations were considered and examined using the SATURN traffic model. The conclusion of the SUFF roads study determined that the optimum configuration required to facilitate the further development envisaged by the plan for the area. This optimum configuration includes the Bracken Link Road scheme.

The route corridor proposed for the Bracken Link Road is very constrained due to adjacent developments. Therefore, there are no feasible alternative route alignments that could have been considered for this scheme to link Bracken Road to the Drummartin Link Road.

The do nothing scenario presents an alternative to the proposed scheme, however this alternative would not facilitate any further development within the Sandyford Business District and result in the continuation of traffic congestion at the existing Drummartin Link Road / Blackthorn Drive and Blackthorn Drive/Blackthorn Road signalised junctions.

Chapter 5: Traffic Impacts

5.1 The Sandyford Urban Framework Plan

In developing the road strategy for the Sandyford Urban Framework Plan a number of alternative road configurations were considered and examined using the SATURN traffic model. Using the traffic model with the ten roads schemes included, stress tests with the addition of various levels of development were carried out to determine the maximum level of development that could be accommodated.

Traffic model analysis concluded that, with the new road infrastructure identified, the maximum level of additional office development that can be accommodated (that contributes to peak hour trips) is 250,000sqm plus a further 100,000sqm as a result of redevelopment and 729no. residential units. This is based on a number of key assumptions, namely: -

- an office occupancy rate of 5 persons/100sqm.
- the constraint of private vehicle access (therefore the model used was not a traditional predict and provide model)
- the promotion of alternative sustainable access modes
- Adherence of additional development to the mode split targeted by the government's policy on Smarter Travel, (i.e. 45% peak hour trips by private car).

Using the traffic model, analysis was carried out on the impact of removing certain road schemes in order to determine the minimum level of road infrastructure required to facilitate this future development. The result of this analysis determined a road configuration that represents the absolute minimum level of new road infrastructure required to facilitate the 350,000sqm of future office development. This roads configuration was included in the Sandyford Urban Framework Plan as TAM17: Six-Year Roads Objectives and incorporates the following schemes: -

- M50 Junction 14 diverge ramp access to Sandyford (the preferred option for which is to the ESB Link Road)
- Revised access to South County Business Park
- Bracken Link Road to Drummartin Link Road
- Reconfiguration of Leopardstown Roundabout
- Arena Road Link (or ESB Link Road)
- Bracken Link Road
- Bus Priority Schemes

The following schemes are retained in the Sandyford Urban Framework Plan (Appendix 15 of the CDP) as TAM18 as Long-term Road Objectives:

- Grade Separation at the Drummartin Link Road/ Blackthorn Drive junction.
- M50 Southbound on ramp from N31 Leopardstown Road
- A road Link through Central Park to South County Business Park
- Leopardstown Road (East) to Murphystown Road

5.2 Traffic

The key node on the western side of Sandyford Business Estate is the Drummartin Link Road/Blackthorn Drive signalised junction.

The 2006 Sandyford Land Use and Transportation Study identified this junction as *"one of the three critical access to the Industrial Estate"* catering for 3500 vehicles during peak hour traffic. It also stated that when this junction was designed that *"the increase in development density within the Industrial Estate was not envisaged"*. At the time of the study site observations indicated queuing in both the AM and PM peaks. Sandyford LUTS identified grade separation for the Drummartin Blackthorn junction as a possible solution.

The Assessment of Potential Growth Study carried out in 2008 identified that *"the Provision of a connection from Bracken Road onto the Drummartin Link Road can provide good relief to the Blackthorn Drive/Blackthorn Road junction during the PM peak, by providing a more direct route onto the M50 interchange"* and noted that *"This is a much easier connection to construct"*.

The 2010 Sandyford Urban Framework Plan (SUFP) listed the Bracken Link Road as a short term objective with the Grade Separation of Drummartin Link Road/Blackthorn Drive as a long term objective. SUFP also stated that the planning approval process for Bracken Link Road *"shall be complete and planning permission granted prior to further development being permitted for office based employment within Sandyford Business District that exceeds 164,000m² of the potential 350,000m² identified"*

5.3 Required Improvements

The proposed Bracken Link Road will provide an alternative access/egress for traffic in Sandyford Business Estate. The junction will be signal controlled catering for left in / left out traffic. There will be one access lane with 2 exit lanes. The design is space proofed for the future provision of footpaths and cycle ways to connect with the proposed footpaths and cycle ways on Drummartin Link Road.

5.4 Traffic Model

The Sandyford Land Use and Transportation Study (Draft Final Report) dated December 2006 developed a Roads Strategy that proposed a number of key road improvements to facilitate the expected traffic growth that will result from the proposed further development of the Sandyford area.

The "do minimum" scenario assumed that all of the permitted 61,500m² commercial development and 1,100 residential units in Sandyford would be completed by 2016 and that no new transportation projects were

initiated other than those already underway. The modelling predicted that there would be significant increases in queue lengths at most junctions including at the Drummartin Link Road/ Blackthorn Drive junction.

The "do something" scenario identified ten possible road improvements for the area to facilitate future development – one of which was the Bracken Link Road. Analysis of the "do something" scenario indicated that the road network would, with acceptable levels of congestion, be able to accommodate additional peak period trips and that there is the potential for an estimated 250,000m² of additional commercial development and 729No. residential units.

In 2009 the model was re-validated by Mott MacDonald. This involved carrying out further traffic counts and journey times and queue lengths surveys. This Peer Review of the original model also concluded that queue lengths reduce significantly relative to the Do Nothing Scenario and that the overall network performance improved.

As an addendum to the Peer Review of the Sandyford Transportation Model DLRCC asked the Consultants to model what effect of the removal of the Bracken Link Road from the proposed traffic measures for Sandyford Business District would have? The scenario modeled consisted of:

- a. The removal of Bracken Link Road; and
- b. The implementation of alternative traffic management measures including:
 - a. Three lanes on a section of Blackthorn Drive
 - b. Banning of a right turn and implementation of two left turn lanes at the Blackthorn Drive access onto Drummartin Link Road
 - c. The implementation of two way traffic flow on a section of Blackthorn Road which is currently one way operational
 - d. Junction improvements at three junctions within Sandyford

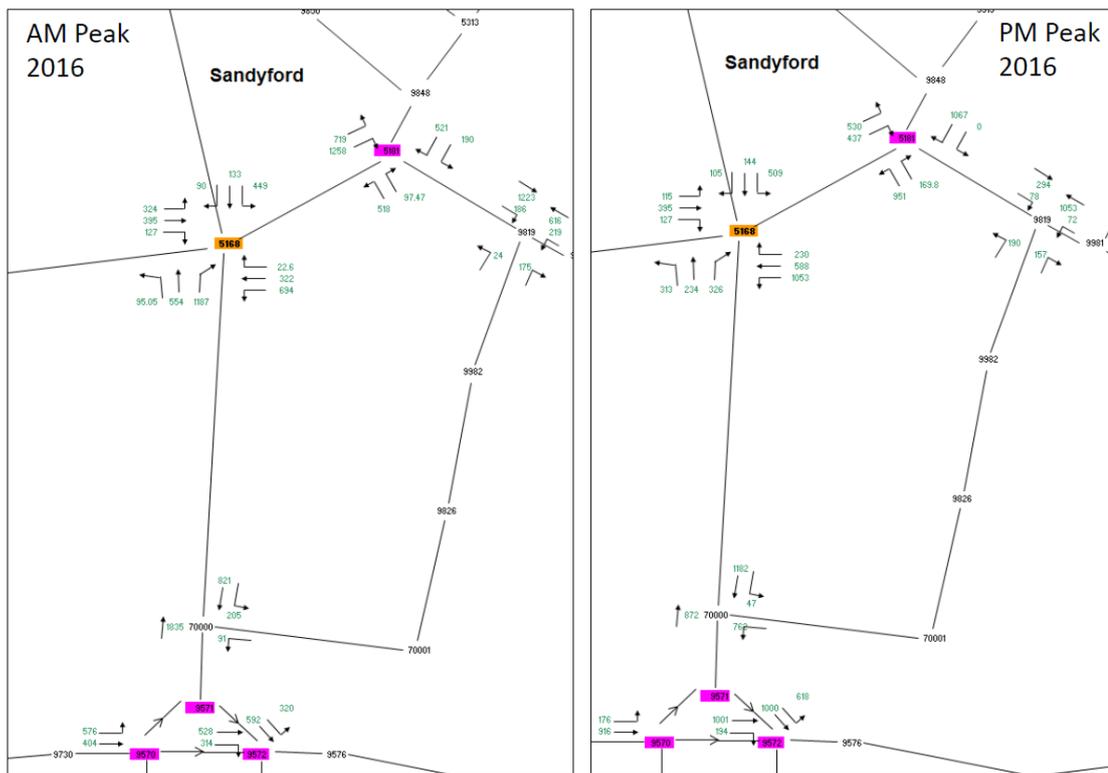
The 2011 Report concluded that *"the non-inclusion of the Bracken Link Road results in significant increase in queuing on Drummartin Link Road and back into Sandyford Industrial Estate"* and that *"the Bracken Link Road remains in any proposed future infrastructural improvement scenarios for Sandyford"*

5.5 Opening Year

At the time of the study the opening year was predicted to be 2016. It was also anticipated that full development within Sandyford Business District would also be in place at that time. At this point in time the opening year would appear to be 2019. However the downturn in the economy has meant a corresponding slowing down of the predicted development.

The traffic modelling has indicated that the proposed Bracken Link Road will operate satisfactorily in the Opening Year and will relieve congestion on at the Drummartin Link Road/Blackthorn Drive junction during the PM peak period.

The anticipated traffic flows on the proposed Bracken Link Road during the AM and PM peak hour when full development has been completed are indicated below:



Chapter 6: Impact on Human Beings

6.1 Introduction

This chapter of the Environmental Report describes the impact of the proposed Bracken Link Road on the "human environment" in terms of population, employment and community impacts.

6.2 Population

Receiving Environment for Population:

The area adjacent to the proposed road is a mix of brown field, commercial, open space and institutional land uses. Most existing development consists of commercial office and warehouse type development. Future population growth in the area is an objective of the County Council Development Plan, and this will depend on the provision of new commercial residential development as envisaged by the Sandyford Urban Framework Plan. Improvements to the local transportation infrastructure as set out in the SUFP are a prerequisite to support the anticipated population growth in the area.

Predicted Impact of Scheme for Population:

The proposed road will facilitate further residential and commercial development in the Sandyford area by mitigating congestion that would otherwise arise on the existing road network.

6.3 Employment

The predicted impacts on employment due to the various stages of the scheme are outlined below:

Construction Phase:

The construction phase of the roads scheme will generate construction employment on site in addition to jobs in support industries e.g. builders suppliers, local retailers etc.

Operational Phase:

The development of the scheme, in conjunction with other transportation initiatives for the area will ensure that the area of Sandyford Business District will remain an attractive location for business at an important nodal point within a regional multi-modal transportation network. This will result in the increased demand for commercial and professional services, thereby increasing employment opportunities within the Sandyford Business District area.

Do Nothing Impact:

If the road is not constructed there will be an increase in traffic congestion on the local road network and the potential for future commercial and residential development in the area of Sandyford Business District will be curtailed.

6.4 Community Impact

Receiving Environment:

Bracken Road is a cul de sac. Constructing the extension will create an alternative route for traffic to access/egress this section of Sandyford Business District.

Predicted Impact of Proposed Community Impacts:

No additional severance will arise between communities because of the proposed road. There will be a beneficial community impact arising from the provision of an additional route for traffic, cyclists and pedestrians.

Chapter 7: Environmental Issues

7.1 Introduction

This chapter outlines the effects of the scheme and proposes mitigation measures required to ameliorate these effects, under the following headings: -

- (a) Noise & Vibration
- (b) Air Quality and Climate;
- (c) Hydrology & Hydrogeology;
- (d) Soil

7.2 Noise & Vibration

7.2.1 Noise

There is unlikely to be significant noise impact as part of the construction phase of the scheme. Due to the nature of the scheme any noise nuisance will be temporary and localised. Standard limitations for noise will apply as laid out in the National Roads Authority (NRA) publication Guidelines for the treatment of Noise and Vibration, which sets out limits for construction activities.

Construction Impacts and Mitigation Measures for Noise

A variety of items of plant will be in use, such as excavators, lifting equipment, dumper trucks, compressors and generators. There will be vehicular movements to and from the site that will make use of existing roads.

The contract documents will clearly specify that the Contractor undertaking the construction of the works will be obliged to take specific noise abatement measures and comply with the recommendations of BS 5228: Part 1 and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001. These measures will ensure that:

- No plant used on site will be permitted to cause an ongoing public nuisance due to noise.
- The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.
- Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers.

- Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.
- Any plant, such as generators or pumps, that is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screen.

During the course of the construction programme, supervision of the works will include ensuring compliance with the limits detailed in Table 8.9 using methods outlined in BS 5228 "Noise and Vibration Control on Construction and open sites", Annex E. It should be noted that BS 5228 does not detail any specific noise limits in relation to construction noise.

Working Hours

Normal working times will, in general, be during daylight hours 07:00 to 19:00hrs Monday to Saturday. Works other than the pumping out of excavations, security and emergency works will not be undertaken outside these working hours without the written permission of the Engineer. However some limited nighttime working will be required for the proposed new junction works. This permission, if granted, can be withdrawn at any time should the working regulations be breached.

Works other than the pumping out of excavations, security and emergency works will not be undertaken at night and on Sundays without the written permission of the Engineer.

Construction Phase

During the construction phase of the project there will be some small impact on nearby properties due to noise emissions from site traffic and other activities. The transient nature of construction works, the application of binding noise limits and hours of operation, along with implementation of appropriate noise control measures, will ensure that noise impact is kept to a minimum.

Operational Phase

The predicted noise level generated by the proposed road development during the operational phase is not expected to represent a significant increase on current noise levels in the area.

7.2.2 Vibration

Potential Vibration Impacts – Operational Phase

As a vehicle travels along a road, vibration can be generated in the road and subsequently propagate towards nearby buildings. Such vibration is generated by the interaction of a vehicle's wheels and the road surface and by direct transmission through the air of energy waves. Some of these waves arise as a function of the size, shape and speed of the vehicle, and others from pressure fluctuations due to engine, exhaust and other noises generated by the vehicle.

Ground vibrations produced by road traffic are unlikely to cause perceptible structural vibration in properties located near to well-maintained and smooth road surfaces. Problems attributable to road traffic vibration can therefore be largely avoided by maintenance of the road surface.

Potential Impacts – Construction Phase

The potential for vibration at sensitive locations during construction is typically limited to demolition, excavation works, rock-breaking operations and lorry movements on uneven road surfaces. The more significant of these is the vibration from excavation and rock-breaking operations; the method of which will be selected and controlled to ensure there is no likelihood of structural or even cosmetic damage to existing neighbouring dwellings.

7.3 Air Quality & Climate

7.3.1 Air Quality

Construction Phase

There is the potential for a number of emissions to the atmosphere during the construction of the scheme. In particular, the construction activities may generate quantities of dust. If a satisfactory dust minimisation plan is implemented, the effect of construction on air quality will not be significant.

The Contractor will be obliged by the local authority and the relevant legislation to ensure that the surrounding roads are kept free from dirt. In dry weather conditions, the Contractor will be required to minimise airborne dust from the site through spraying of exposed earthworks with water.

Operational Phase

Although some increase in pollutant concentrations may occur as a result of the proposed road development, it is considered that no significant increase in pollutant levels will occur. Therefore the road scheme will result in an imperceptible impact on air quality in the operational phase.

7.3.2 Climate Impact

In terms of climate, Ireland ratified the Kyoto Protocol in May 2002 agreeing to limit the net growth of the six greenhouse gases to 13% above the 1990 level over the period 2008 to 2012. Traffic flows on the proposed road will be a source of greenhouse gas emissions. However, these will be insignificant in terms of Ireland's obligations under the Kyoto Protocol.

7.4 Hydrology and Hydrogeology & Carysfort Maretimo Stream

The surface water runoff for the proposed road extension will be directed into the existing storm water network and the Carysfort Maretimo Stream via an attenuation system. The attenuation measures required for the proposed road are currently at preliminary design stage but will be designed in accordance with best practice and will be designed to attenuate the 1% AEP storm event (including a climate change factor) and sized using calculated green-field run off rates.

The Carysfort Maretimo Stream is almost entirely culverted through the Sandyford Industrial Estate. However, there is a short open section channel (Approx. 5m) at the location of the proposed Bracken Link Road. The Carysfort Maretimo Stream crosses the M50 Motorway in a 1500mm diameter culvert in a North Easterly direction at a relatively flat gradient. It then discharges to a short section of open channel, before re-entering a steep 900mm diameter culvert, which then changes to a flatter gradient 1200mm culvert.

No historical flood events have been recorded on OPW's FloodMaps.ie in the Sandyford Industrial Estate. However, Dun Laoghaire Rathdown County Council Drainage Department indicated that there had been incidents of the drainage network surcharging in the vicinity of the proposed roadway.

The Guidelines recommend identifying flood zones which show the extent of flooding for a range flood event probabilities. The Guidelines identify three levels of flood zones:

- Flood Zone A – where the probability of flooding from rivers and the sea is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding).
- Flood Zone B – where the probability of flooding from rivers and the sea is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding).
- Flood Zone C – where the probability of flooding from rivers and the sea is low (less than 0.1% or 1 in 1000 for both river and coastal flooding). Flood Zone C covers all areas of the plan which are not in zones A or B.

The Carysfort Maretimo Stream was hydraulically modelled as part of the Eastern Catchment Flood Risk Assessment and Management (CFRAM) Study carried out by the OPW as part the National CFRAM programme.

A site specific study was carried out for the Bracken Link Road. This revealed that in the 1% AEP event there was no flood risk indicated in the Sandyford Business District or along the proposed route of the road link. However in the 0.1% AEP flood event the study revealed a risk of flooding to the Sandyford Industrial Estate.

A number of options chosen to alleviate the resulting change in flood risks in the Sandyford Industrial Estate were assessed. Option 5 was deemed the most suitable option. Option 5 consists of culverting and sealing the open channel section of the Carysfort Maretimo Stream and implementing a series of mitigation measures to maintain the existing 0.1% AEP flow paths. These mitigation measures include:

- Providing a new culvert under the proposed Bracken Road to maintain the north westerly flood flow path along the Drummartin Link Road;
- Lowering the area between the Drummartin Link Road and the Beacon Hospital to create a 3,000m³ open flood storage area; and

- Moving the steep 900mm diameter to a location immediately downstream of the proposed Bracken Road, to allow access to it in case maintenance is required.

The options assessed are listed below:

Option	Description	Risk
Option 1	750mm x 850mm culvert and 900mm pipe removed - Replaced by 1500mm diameter pipe at steeper gradient. Bracken Road Constructed	Additional Flooding Downstream in Sandyford Industrial Estate
Option 2	Open Channel Section Culverted and Sealed - Bracken Road Constructed.	Additional Flooding to Audi Site due to existing flow path being cut off by Bracken Road.
Option 3	Open Channel Section Sealed. Bracken Road Constructed with 2,000 m3 Storage Tank.	Additional Flooding to Audi Site due to existing flow path being cut off by Bracken Road.
Option 4	Open Channel Section and Manhole Immediately Upstream Sealed.	Additional Flooding of M50 Upstream
Option 5	Open Channel Section Culverted and Sealed – Culvert Under Bracken Road Added	Additional Flooding to Amenity Grounds and to Local Road Network

7.4 Soil

This proposed Bracken Link Road will have no significant impact on soils along the proposed route.

Chapter 8: Flora and Fauna

There is no feature of significant interest in the flora and fauna of the site as all species are typical of the habitats and are very wide spread in similar areas. The trees and shrubs in the Drummartin Link Road verge represent the most natural habitat present and bring a small amount of wildlife onto the site.

Chapter 9: Landscape & Visual Impacts

The Bracken Link Road will be constructed on a mix of brown field, commercial premises, car park and existing road sites. The proposed road alignment is constrained horizontally by proposed developments and the need to provide sufficient distance between the proposed junction with Drummartin Link Road and the Sandyford Interchange. The road has been designed to link the level of the existing Bracken Road with the Drummartin Link Road. As a result the visual impact of the road scheme will not be significant.

As noted in chapter 3 section 3.1 Road Layout: The proposed road will connect Bracken Road with Drummartin Road via a continuous curve. The southern section of Bracken Road will be realigned to connect with the Drummartin Link Road at a signal controlled T-junction. This section at the tie-in will involve the removal of some boundary planting which mainly consist of mainly Laurel and Griselinia shrubs and some young/early mature trees.

The proposed boundary treatment will be subject to agreement between the Council and the respective landowners and provision for an element of tree planting will be included where possible.

Chapter 10: Impact on Material Assets

The proposed scheme will require a permanent land area of approximately 0.565 hectares. The impacts of the proposed road for each of the affected landowners will be as follows:

- The proposed road traverses a site in the ownership of Charles Hurst Dublin Limited, dividing the site into approximate two equal portions. Approximately 0.215hA is to be permanently acquired. To the south of the proposed road a new Audi Centre building is under construction. The portion of the site to the north of the proposed road is zoned for Medical/Hospital Uses. At present there are 2 buildings on this site. Neither of these buildings will be directly affected by the proposed road however the proposed longterm access to this part of the site will be adjusted to provide access to these buildings in the interim.
- To allow a smooth tie-in between the proposed and existing roads approximately 0.0055hA is to be permanently acquired from Beacon Court. The entrance will be modified to accommodate the proposed road.
- The rest of the land to be acquired is in the ownership of Dun Laoghaire Rathdown County Council, some of which forms part of the reservation for proposed Eastern By-Pass.
- The proposed link road ties into Drummartin Link Road which is in the control of Transport Infrastructure Ireland.

This new road alignment results in the southern portion of Bracken Road becoming a spur road off the new 'main' road. These roads will intersect as a standard priority junction.

A Hydraulic Analysis has determined that constructing the proposed road has an impact on the flow path of flood waters in the 1 in 1000 year event. The scheme involves closing an open section of the Carysfort Maretimo Stream. The scheme doesn't generate any additional flood waters but it does impact on where these flood waters will go.

A Flood Risk Study concluded that providing an 'overflow' pipe under the proposed road will allow the excess water to divert in a northerly direction towards the open space (Eastern By-Pass Reservation) between the Drummartin Link Road and the Beacon Hospital and onwards towards Pairc Ui Briain. Not providing this overflow causes flooding in the Sandyford Business District regardless of whether or not the Bracken Link Road is constructed

Chapter 11: Architectural, Archaeological and Cultural Heritage

11.1 General

All works will take place, with only minor surface effects, either within the corridor of the existing road or directly adjacent to the existing road in land that has been subject to recent development. All works will take place outside the boundary and curtilage of the protected structure of Bracken. Consequently there are no predicted impacts on architectural, archaeology and cultural heritage.

11.2 Impacts on Monuments and Places

A review was undertaken of the Record of Monuments and Places, which is compiled and updated by the National Monuments Service. There are no known sites within the footprint of the scheme. The protected structure of Bracken and its curtilage that neighbours the scheme will not be impacted by the proposed road development.

11.3 Impacts on Cultural Heritage

Any development that includes topsoil and subsoil stripping, reduction of ground levels and excavation can potentially have a negative impact on archaeological and cultural remains both recorded and unrecorded. The proposals will not directly impact on any recorded archaeological monuments. There is no predicted impact on known archaeological remains.

11.4 Mitigation Measures for Cultural Heritage

Archaeological assessment is not required because this area has been subject to previous ground disturbance that would have removed any archaeological features and deposits should they have been present. However, an archaeologist should be retained for monitoring of the earthworks activities.

Chapter 12: Construction Phase

12.1 Introduction

This chapter of the Environmental Report outlines, the significant environmental effects that may arise during the construction phase. Furthermore the proposed ameliorative measures, which are generally considered in the previous chapters, are also outlined. This chapter deals with the issue of the timescale for construction, locations and operation of the site compounds and details temporary impacts, not previously described, on residents, road users, pedestrians and cyclists.

12.2 Time Scale for Construction

The period of time to complete the proposed road scheme is estimated at 9 months.

12.3 Site Compounds

A site compound will be required in a location to suit the construction activities. This compound will provide office and canteen facilities as well as providing a space for storage of materials and construction plant.

12.4 Impact of Construction Activities

Construction Noise: The construction of the road scheme will cause an increase in local noise levels during working hours. No particularly high noise generating activities such as blasting are anticipated. Contract conditions will limit working hours to daytime, thereby avoiding the potential for disturbance of residents at night. However some nighttime operations may be required to complete the road connection and new signal controlled junction at Drummartin Link Road.

Pollution of Watercourses: Accidental spillages into the watercourses and drainage systems could lead to pollution. The Contract will include requirements for appropriate measures to prevent an accidental spillage of pollutant materials. Measures will be adopted to prevent discharge of suspended solids into the watercourses during construction phase. The road drainage run-off will be treated before discharging to the receiving waters.

Dirt and Dust: The Contractor will be obliged by the local authority and the relevant legislation to ensure that the surrounding roads are kept free from dirt. In dry weather conditions, the Contractor will be required to minimise airborne dust from the site through spraying of exposed earthworks with water.

Construction Traffic: There will be traffic associated with the construction phase of the proposed Bracken Link Road. However as the earthworks are limited, construction movements will not be significant.

Chapter 13: Interrelationships

13.1 Introduction

Each of the various environmental and related topics has been separately discussed in the previous chapters of the Environmental Report. In this chapter the impacts that the Bracken Link Road will have on the existing environment have been identified as follows: -

In the table below the shaded boxes indicate inter-relationships between different aspects of the environmental impacts of the scheme.

Receptor Activity	Traffic	Community	Noise & Vibration	Air Quality	Landscape / Visual	Ecology	Soils	Climate	Water	Archaeology	Architecture
Traffic		*	*	*		*		*			
Community											
Noise & Vibration		*				*					
Air Quality		*				*		*	*		
Landscape / Visual		*	*								
Ecology					*		*	*	*		
Soils			*								
Climate									*		
Water						*					
Archaeology											
Architecture											

Environmental Impact Matrix

Chapter 14: Summary of Mitigation Measures

14.1 Noise & Vibration

- Low noise road surfacing will be provided on the proposed road.
- The application of BS 5228:1997 "Noise Control on Construction and Demolition Sites" should minimise disturbance to locals,
- Machinery and compounds will be positioned, where possible, to avoid undue disruption.

14.2 Archaeology and Cultural Heritage

Construction Phase for Archaeology

- An archaeologist should be retained for the duration of the relevant earthworks, in accordance with current best practice;
- The cessation of machine work must occur as soon as archaeological material has been uncovered.

14.3 Construction Phase

- All measures shall be taken to ensure that surface water runoff is free from suspended solids and other pollutants,
- All storage areas should be in bunded compounds away from watercourses,
- Regular maintenance and servicing of machinery and plant will be required,
- The contractor must set up systems to prevent dirt from being released onto public roads. In the event that site traffic does dirty the roads, then the contractor will be required to clean all the roads affected,
- Control of the release of suspended solids into the public drainage systems will be done through the use of interceptors or traps,
- Contract conditions will require that the contractor prevents silt laden water from discharging into the watercourse,
- On site temporary toilet facilities shall be serviced and maintained by a specialist contractor.

APPENDIX 1: Appropriate Assessment Screening Report



Appropriate Assessment Screening
Bracken Link Road

June 2017

1. Introduction

Objectives

- 1.1 The proposed link road is included as a six year road objective in Appendix 15 of the County Development Plan 2016-2022.
- 1.2 The area to the north of the proposed link road is zoned for Medical/Hospital uses.
- 1.3 The area of to the south of the proposed link road is zoned Light Industrial/Warehousing
- 1.4 The land on which the proposed road is to be built is bounded by Bracken Road to the east, Drummartin Road to the west, Beacon Hospital to the north and an M50 Maintenance depot to the south.
- 1.5 The site is located in a sub-urban setting and habitats present are mainly buildings and access roads
- 1.6 The eastern half of the site is currently occupied by 3no buildings with associated parking etc. Two of which are used as an Audi Service Centre, the third is occupied by Alan Heary Performance. The smaller of the Audi buildings and the building occupied by Alan Heary will have to be demolished to allow the link road to be constructed. The western half of the site is an area that has been left unmanaged. Due to relatively recent disturbance it can be classified as bare ground.
- 1.7 Planning for an Audi Showroom has been approved for the area of the site to the south of the proposed link road. Constructing this showroom also requires the demolition of the smaller of the two Audi buildings.
- 1.8 The access to the site is from Bracken Road from within the Sandyford Business Park.

Need for Appropriate Assessment

- 1.7 Special Areas of Conservation (SACs) and Special Protection Areas for birds (SPAs) are sites that form part of a network of environmental sites, known as Natura 2000 sites, within the EU. SACs are designated under the EU Habitats Directive (92/43/EEC), as transcribed into Irish law by the European Communities (Natural Habitats) Regulations, 1997, while SPAs are designated under the EU Birds Directive (79/4089/EEC, as amended and codified in 2009/147/EC).
 - 1.8 Article 6(3) of the EU Habitats Directive states that: "Any plan or project not directly connected with or necessary to the management of the [Natura 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives."
- Such an assessment is known as an Appropriate Assessment (AA).

2. Methodology

2.1 The Appropriate Assessment process begins with Stage 1 - Screening to determine if a plan or project is likely to have an impact on a Natura 2000 site. A screening assessment was carried out and is presented below. Methodology used to complete the Appropriate Assessment follows best practice guidance, including:

- European Commission (2000) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
- European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/49/EEC; Clarification of the concepts of: Alternative solutions, Imperative reasons of overriding public interest, Compensatory Measures, Overall Coherence, and Opinion of the Commission.
- Department of the Environmental Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities.

2.2 Locations and boundaries of all Natura 2000 sites within 10 km of the proposed development were identified and reviewed.

2.3 The assessment is based on a combination of a desk study and a field walkover survey in which habitats on site were assessed and the suitability of the site to support plants, animals or habitats of note was considered. Any watercourses close to the site were also examined with a view to determining ecological risks associated with the proposed development.

3. Ecological Character of the Proposed Site

3.1 Approximately half of the site is occupied by 3 buildings with associated parking.

3.2 The remainder of the site is characterised as an area that has been left unmanaged. Some of it is part of the road reservation for the proposed Eastern By-Pass. Due to the recent disturbance, the area now supports bare ground (ED2) that is currently recolonising (ED3) with ruderal plant species along the verge of the site typical of areas that have been left to recolonise naturally from previous disturbance. It is not anticipated that the above will preclude the development of the site.

3.3 No direct sightings of any mammals were noted during the preliminary site visit. The site is fairly typically of a suburban industrial environment. The site is fenced off from the adjoining areas. The site is not easily accessible to mammals and provides a minimal availability of suitable foraging or burrowing area, but mammals such as rabbits, mice or foxes may access this site occasionally.

3.4 A tributary of the Sandyford Stream flows in a 1500mm diameter pipe underneath the proposed link road. As stated in the Environmental Report, the Sandyford Stream is of limited ecological value. In terms of its riparian and aquatic ecology, it is evaluated overall as being of poor water quality status.

4. Natura 2000 sites

4.1 The proposed development site is not located within any site designated for nature conservation.

4.2 There are several Natura 2000 sites within 10km of the proposed development site, namely South Dublin Bay Special Area of Conservation (SAC) (Site Code: 000210) and South Dublin Bay and River Tolka Estuary Special Protection Area for birds (SPA) (Site Code: 004024), and Wicklow Mountains (SAC) (Site Code: 002122), and Wicklow Mountains (SPA) (Site Code: 004040), which it is contiguous with Wicklow Mountains SAC and Knocksink Wood SAC (Site Code: 000725) and Ballyman Glen SAC (Site Code: 000713) and Dalkey Islands SPA (Site Code: 004172).

4.3 The Wicklow Mountains, Knocksink Wood and Ballyman Glen are located approximately 8km south and Dalkey Islands SPA is approximately 10km east of the proposed depot site. There is no connectivity (direct or indirect) between these sites and the proposed development so it is highly unlikely that there would be any indirect impacts on these Natura 2000 sites. These sites are not considered further as part of this AA screening report and the following discussion focuses on those sites within 4km of the proposed development site.

4.4 South Dublin Bay (including sites 000210 and 004024) are approximately 4km north east of the proposed depot site and are considered further.

South Dublin Bay SAC (Site Code: 000210)

4.5 This site lies south of the River Liffey and extends from the South Wall to the West Pier at Dun Laoghaire. It is an intertidal site with extensive areas of sand and mudflats, a habitat listed on Annex I of the E.U. Habitats Directive. At their widest, the intertidal flats extend for almost 3km.

The sediments are predominantly sands but grade to sandy muds near the shore at Merrion Gates. The main channel which drains the area is Cockle Lake. A number of small streams and drains flow into the site. The proximity of the site to Dublin City results in it being a very popular recreational area.

4.6 The Natura 2000 form also lists a number of bird species listed on Annex I of the EU Birds

Directive (79/409/EEC): - Black-tailed Godwit (*Limosa lapponica*), Roseate tern (*Sterna dougallii*), Common tern (*Sterna hirundo*) and Arctic Tern (*Sterna paradisaea*).

4.7 Regularly occurring migratory birds (not listed on Annex I of the EU Birds Directive 79/409/EEC) include: - Light bellied Brent Geese (*Branta bernicla*), Oystercatcher (*Haematopus ostralegus*), Ringed Plover (*Charadrius hiaticula*), Knot (*Calidris canutus*), Sanderling (*Calidris alba*), Dunlin (*Calidris alpina*), Redshank (*Tringa totanus*) and Turnstone (*Arenaria interpres*).

South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024)

4.8 The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dún Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the Bay is also included.

4.9 The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Golden Plover (*Pluvialis apricaria*), Grey Plover (*Pluvialis squatarola*), Knot, Sanderling, Dunlin, Bar-tailed Godwit (*Limosa lapponica*), Redshank, Black-headed Gull (*Chroicocephalus ridibundus*), Roseate Tern, Common Tern and Arctic Tern. The E.U. Birds Directive pays particular attention to wetlands, and as these form part of the SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds.

4.10 The Natura 2000 form also lists a number of bird species listed on Annex I of the EU Birds

Directive (79/409/EEC): - Bar-tailed Godwit, Mediterranean Gull (*Larus melanocephalus*), Roseate Tern, Common Tern and Arctic Tern.

4.11 Regularly occurring migratory birds (not listed on Annex I of the EU Birds Directive 79/409/EEC) include: - Great crested Grebe (*Podiceps cristatus*), Cormorant (*Phalacrocorax carbo*), Lightbellied Brent Geese, Red-breasted Merganser (*Mergus serrator*), Oystercatcher, Ringed Plover, Grey Plover, Knot, Sanderling, Curlew, Turnstone, Black headed Gull, Common Gull, Redshank and Dunlin.

Rockabill to Dalkey Island SAC (Site Code: 3000)

4.12 Rockabill to Dalkey Island SAC is designated for the Marine Annex I qualifying interest 'Reefs' and the Annex II species *Phocoena phocoena* (harbour porpoise). The site Rockabill to Dalkey Island SAC comprises of two community types which are recorded within the Annex I habitat: intertidal reef community complex and subtidal reef community complex.

4.13 The species associated with the intertidal reef community complex include the fucoids *Fucus serratus*, *F. vesiculosus*, *F. spiralis*, *Ascophyllum nodosum* and *Pelvetia canaliculata*, the barnacle *Semibalanus balanoides* and the bivalve *Mytilus edulis*. In the more exposed areas *Semibalanus balanoides* and *Mytilus edulis* dominate while in the more moderately exposed areas it is the furoid species that are more abundant. The gastropods *Patella vulgata* and *Littorina* sp. are also recorded here. In all areas, the kelp species *Laminaria digitata* is recorded at the low water mark.

4.14 In the shallow reaches of the subtidal reef community complex a sparse covering of the kelp species *Laminaria hyperborea* occurs with an undercover of red algal species including *Hypoglossum hypoglossoides*, *Brongniartella byssoides*, *Membranoptera alata*, *Phycodrys rubens* and *Delesseria sanguinea*. In deeper water the anemone *Alcyonium digitatum* occurs in moderate abundances and *Metridium senile* is also recorded here. Faunal crusts of bryozoans such as *Flustra foliacea* and *Chartella papyracea* and hydroids, including *Nemertesia antennina*, are recorded in deeper water along with the ascidian *Aplidium punctum*. The asteroid *Asterias rubens* is recorded throughout the site while the barnacle *Balanus crenatus*, the echinoderms *Echinus esculentus* and *Antedon bifida* also occur here.

4.15 Harbour Porpoise is a small-toothed cetacean species (from the mammal Order Cetacea - whales, dolphins and porpoises) and occurs in estuarine, coastal and offshore waters in which it carries out breeding, foraging, resting, social activity and other life history functions. The consistent annual and seasonal occurrence of the species at the site, its

occurrence during the calving/breeding period and density/population estimates available to date all indicate the importance of this coastal site for the species.

Connectivity of the Site with Natura 2000 Sites

4.16 There are no watercourses on site nor are there any open drainage ditches or channels currently draining surface water from the proposed development site. The study area does not display connectivity via surface watercourses to any of the Natura 2000 sites listed above.

Potential Impacts on the South Dublin Bay SAC, South Dublin Bay & River Tolka Estuary SPA and Rockabill to Dalkey Island SAC

4.17 The proposed development site is located over 4km from South Dublin Bay SAC and South Dublin Bay and River Tolka Estuary SPA and Rockabill to Dalkey Island SAC.

4.18 The Sandyford site is not located on, or immediately adjoining, any Natura 2000 sites, nor does it support habitats or species for which nearby sites have been designated. Therefore direct impacts are not likely.

4.19 There are no watercourses within the site to which discharge could take place. Therefore indirect impacts on Natura 2000 sites by contamination of watercourses are unlikely.

4.20 The salt barn and associated hard standing, which includes a wash-down area, will be constructed on an impermeable ground surface which will be positively drained to the foul water system and will not be allowed to enter water courses or ground water (i.e. through percolation). Pollution will therefore be prevented at source in order to prevent saline waters entering groundwater through percolation or any off-site ditches / watercourses via overland flow. The main risk to waters could therefore be through the percolation of contaminated waters to groundwater. All supplies of salt will be covered / stored in roofed buildings to ensure minimal levels of salted water being liberated from stored salt supplies. With such measures in place indirect impacts on Natura 2000 sites by contamination of underground water is unlikely.

4.21 With implementation of the mitigation measures, the proposed development should not result in negative impacts on the conservation objectives of the Natura 2000 sites discussed above.

5. Conclusions and Mitigation

5.1 It is considered that there is not a requirement to provide an Appropriate Assessment for this site.

5.2 A design has been developed for the water management on the site that intercepts potential pollution of streams at source and prevents discharge of contaminants to either surface or ground waters.

APPENDIX 2: Scheme Drawings

