Clifton Scannell Emerson Associates

# Grange Castle Business Park
# Site Access Road

# Environmental Screening Report

GRANGE CASTLE

Comhairle Contae Átha Cliath Theas
South Dublin County Council

**Client: South Dublin County Council**

**Date: 06th May 2015**

**Job Number: 15_033**

Civil Engineering | Structural Engineering | Transport Engineering | Environmental Engineering | Project Management | Health and Safety

CONSULTING ENGINEERS

**Clifton Scannell Emerson Associates Limited,**
Consulting Engineers, Seafort Lodge, Castlesdawson Avenue, Blackrock, Co. Dublin, Ireland.
T. +353 1 2885006 F. +353 1 2833466 E. info@csea.ie W. www.csea.ie

## Document Control Sheet

| | |
|---|---|
| **Project Name:** | Grange Castle Business Park Access Road |
| **Project Number:** | 15_033 |
| **Report Title:** | Environmental Screening Report |
| **Filename:** | 15_033_R003 Environmental Screening Report |
| **File Path:** | \\Vfileserver\Archdata\DOCUMENTSTORE\15_033\Reports |

| Issue No. | Issue Status | Date | Prepared by | Checked by |
|---|---|---|---|---|
| 1st | Final | 06/05/2015 | DRL | RG |

# Table of Contents

Document Control Sheet ..... 2
Table of Contents ..... 3
1 Introduction ..... 4
1.1 Project Description ..... 4
1.2 Need for the Scheme ..... 5
1.3 Purpose of this Report ..... 5
1.4 Planning Context ..... 6
1.5 Scope ..... 7
2 Regional Setting of the Proposed Development ..... 8
2.1 Responsible Authority ..... 8
2.2 Land Zoning and Other Designations ..... 8
3 Description of the Receiving Environment ..... 9
3.1 Land Use ..... 9
3.2 Existing Water Courses ..... 9
3.3 Material Assets ..... 10
4 Description of the Proposed Development ..... 10
4.1 Proposed Access Road Works ..... 10
4.2 Contractors Site Facilities ..... 11
4.3 Salient Equipment and Material Used During Construction ..... 11
4.3 Working Times During Construction ..... 11
5 Environmental Aspects, Impacts and Mitigation Measures. ..... 12
5.1 Methodology ..... 12
5.2 Construction Phase ..... 12
5.2.1 Human Beings ..... 12
5.2.2 Traffic ..... 13
5.2.3 Third-Party Access Requirements during Construction ..... 14
5.2.4 Flora and Fauna ..... 14
5.2.5 Soil & Groundwater ..... 20
5.2.6 Water ..... 21
5.2.6 Air & Noise ..... 21
5.2.7 Climate/Air Quality ..... 22
5.2.8 Landscape ..... 22
5.2.9 Material Assets ..... 23
5.2.10 Cultural Heritage ..... 23
5.3 Operational Phase ..... 24
5.3.1 Human Beings ..... 24
5.3.2 Vehicular and Pedestrian Traffic ..... 24
5.3.3 Flora and Fauna ..... 24
5.3.4 Soil ..... 24
5.3.5 Air & Noise ..... 24
5.3.6 Climate/Air Quality ..... 25
5.3.7 Landscape ..... 25
5.3.8 Material Assets ..... 25
5.3.9 Cultural Heritage ..... 25
6 Conclusion ..... 26

# 1 Introduction

## *1.1 Project Description*

Clifton Scannell Emerson & Associates (CSEA) have been appointed by South Dublin County Council (SDCC) as Consulting Engineers for the preparation of documentation for public display for the Grange Castle Business Park Access Road Scheme in accordance with the Planning and Development Act 2000 and Part 8 of the Planning and Development Regulations 2001.

A preliminary design has been prepared for the Scheme which incorporates approximately 150m of 6m wide access road infrastructure including a large turning area for HGV's traffic. There are two site entrances provided for within the scheme that will afford access to the proposed sites. The proposed 6m wide access road will tie into the existing road infrastructure attributed to Grange Castle Business Park. Also included within the access road scheme are outlined as follows;

- Provision for a 2m wide raised cycle track which will ultimately connect into the existing cycle/footway infrastructure attributed to GCBP.
- Provision for a 2m wide footpath which will ultimately connect into the existing cycle/footway infrastructure attributed to GCBP.
- Provision for new kerbing and uncontrolled pedestrian crossing points with tactile paving incorporated.
- Provision for a new Public lighting system which will match existing lighting infrastructure attributed to GCBP.
- Provision for the introduction of new signs and road markings.
- Provision for a new storm water drainage system.
- Relocation of existing services where required.
- Provision of other services and utilities where necessary.
- Landscaping and tree planting.
- All associated site works as necessary to complete the scheme.

## *1.2 Need for the Scheme*

The proposed scheme will involve the delivery of an Access Road to an undeveloped site within the confines of Grange Castle Business Park (GCBP). The Access Road will be accompanied by a footpath, cycle track, associated landscaping, relocation and the introduction of services and all associated site works as necessary to complete the scheme.

The purpose of land use zoning within the South Dublin County Development Plan (2010 – 2016) is to indicate the planning control objectives of the Council for all lands in its administrative area. The proposed scheme is located within Zone EP2 (Enterprise Zoning Objective Two) which has an objective as follows:

*"To facilitate opportunities for manufacturing, Research and Development facilities, light industry, and employment and enterprise related uses in industrial areas and business parks."*

Therefore, this scheme will provide future vehicular and pedestrian/cyclist access to and from the proposed site to fulfil it zoning objectives. Furthermore, the proposed Scheme will support the objectives embodied in the National Transport Authority's Greater Dublin Area Transport Strategy in respect of improving safety for all road users, and facilitating increased cycle usage and walking.

## *1.3 Purpose of this Report*

This Environmental Report has been prepared to support the Part 8, prescribed for the purposes of Section 179 Act, Planning Procedure and to ultimately provide further details of the proposed scheme, its associated works and the potential impact it may have on its surrounding environs.

The Environmental Report describes the scheme including its interaction with its surrounding environment, predicted environmental aspects, and associated impacts including proposed mitigation measures that are recommended to be implemented before, during and after construction of the proposed scheme. In particular, attention has been given to how the scheme will potentially impact on the Natural Heritage Area that includes the Grand Canal corridor where the proposed access road is scheduled to be located nearby.

Specialist reports were commissioned by CSEA and Mr. Roger Goodwillie, Applications Ecologist, Lavistown House, County Kilkenny. The required Bat surveys were conducted by Mr. Conor Kelleher of Aardwolf Wildlife Surveys. (Note - All surveys conducted along the Grand Canal)

A total of three Bat surveys were requested for the following schemes which are outlined as follows;

- Proposed Foot/Cycle Path and Cable Laying Development between the 3rd and 12th Locks on the South Side of the Grand Canal, County Dublin.
- Proposed Residential and Commercial Development at Clonburris Little, Clondalkin, County Dublin located to the East of the Grange Castle proposed site)
- Additional report regarding the Proposed Foot/Cycle Path and Cable Laying Development between the 3rd and 12th Locks on the South Side of the Grand Canal, County Dublin in consideration of other development proposals in the area.

The proposed site for the Grange Castle access road is located on the southern side of the Grand Canal, just east of the 12th Lock. With regards to the three above mentioned Bat Surveys, particularly with respect to the Grange Castle stretch along the Grand Canal, the coverage offered by each individual survey is of benefit to the site that will house the proposed access road. Therefore the findings and recommended mitigation measures outlined within the three Bat Survey reports are considered to be pertinent to the proposed site for the Grange Castle access road and this report.
To further compliment the above mentioned surveys, Mr. Roger Goodwillie was commissioned by CSEA to carry out an Otter survey along the same Grange Castle stretch that bounds the Grand Canal corridor. (Mr. Jullian Reynolds conducted survey and produced final report) This will be discussed in more detail in the latter stages of this report with respect to its potential impact on the Natural Heritage Area attributed to the Grand Canal which is located north of the proposed site.

## *1.4 Planning Context*

The proposed Access Road Scheme is a Prescribed Development as set out in Part 8 of the Planning and Development Regulations 2001 to 2012. Article 80 (1) (b) and (k) defines Prescribed Development as follows:

Article 80 (1) (b); The construction of a new road or the 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 –
(i) in the case of a road in an urban area, 100 metres or more,
or
(ii) in the case of a road in any other area, 1 kilometre or more,

Article 80 (1) (k); any development other than those specified in paragraphs (a) to (j), the estimated cost of which exceeds €126,000, not being development consisting of the laying underground of sewers, mains, pipes or other apparatus.

As the proposed access road scheme consists of the construction of approximately 150m of new bituminous road and other works in excess of €126,000, it constitutes a Prescribed Development in accordance with Articles 80 (1) (b) (i) and 80 (1) (k).

## *1.5 Scope*

The Environmental Report identifies the likely effects of the scheme on the environment particularly in the vicinity of the Grand Canal, between Lock 11 and Lock 12 which bounds the northern lands of the Grange Castle Business Park and identifies and offers appropriate mitigation measures.

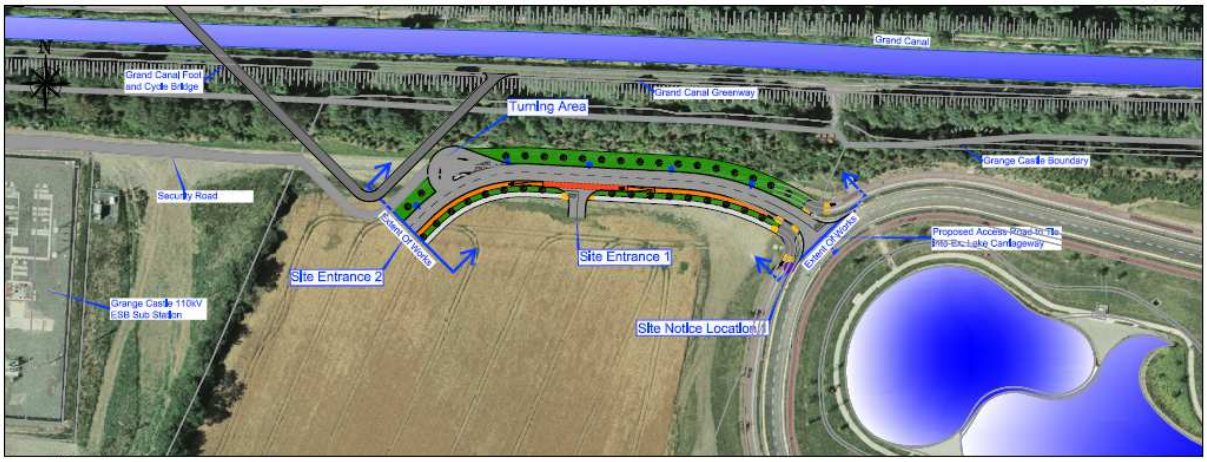


**Figure 1.1 Proposed Grange Castle Access Road**

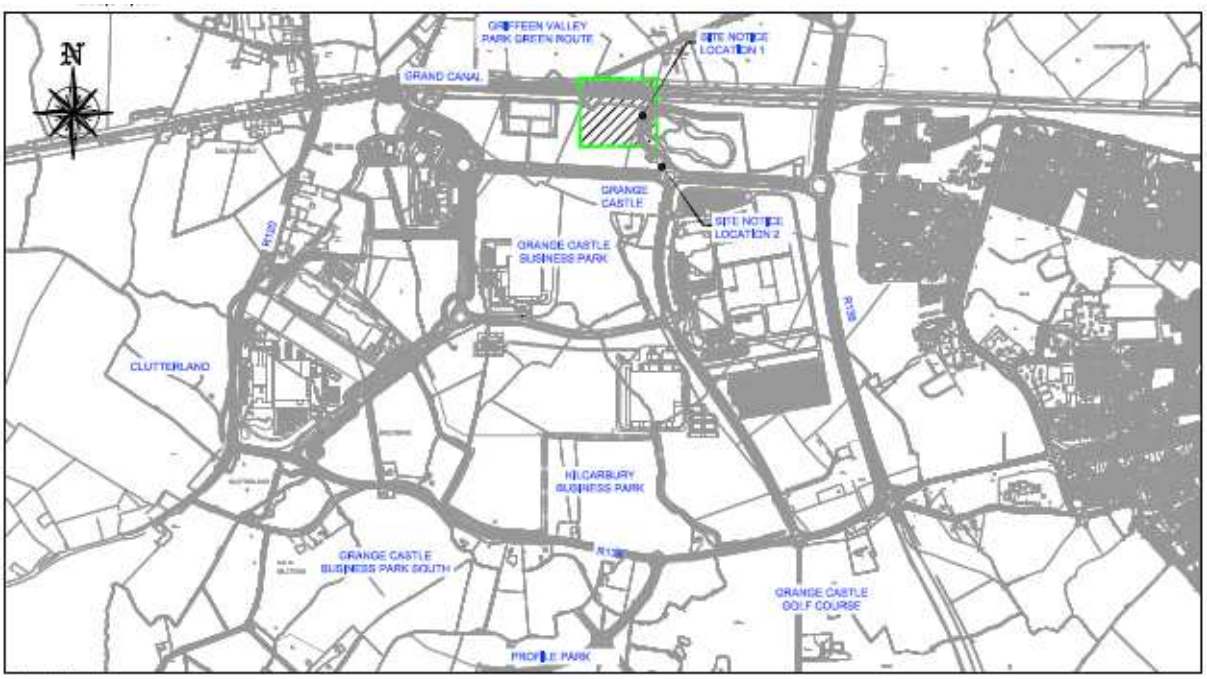


**Figure 1.2 Key Plan**

# 2 Regional Setting of the Proposed Development

## 2.1 Responsible Authority

The Scheme is approximately 150m in length from end to end and includes a HGV turning area. The Scheme offers two entrances to lands to be developed within the domain of Grange Castle Business Park. It connects into the existing Grange Castle lake carriageway located to the east of the proposed site. Access to this site is gained from the R136 which bounded to the west by Grange Castle Business Park and to the east by Old Castle Park/Kilmahuddrick. The Local Authority responsible for this area is South Dublin County Council.

## 2.2 Land Zoning and Other Designations

The purpose of land use zoning within the South Dublin County Development Plan (2010 – 2016) is to indicate the planning control objectives of the Council for all lands in its administrative area. The proposed scheme is located within Zone EP2 (Enterprise Zoning Objective Two) which has an objective as follows:

*"To facilitate opportunities for manufacturing, Research and Development facilities, light industry, and employment and enterprise related uses in industrial areas and business parks."*

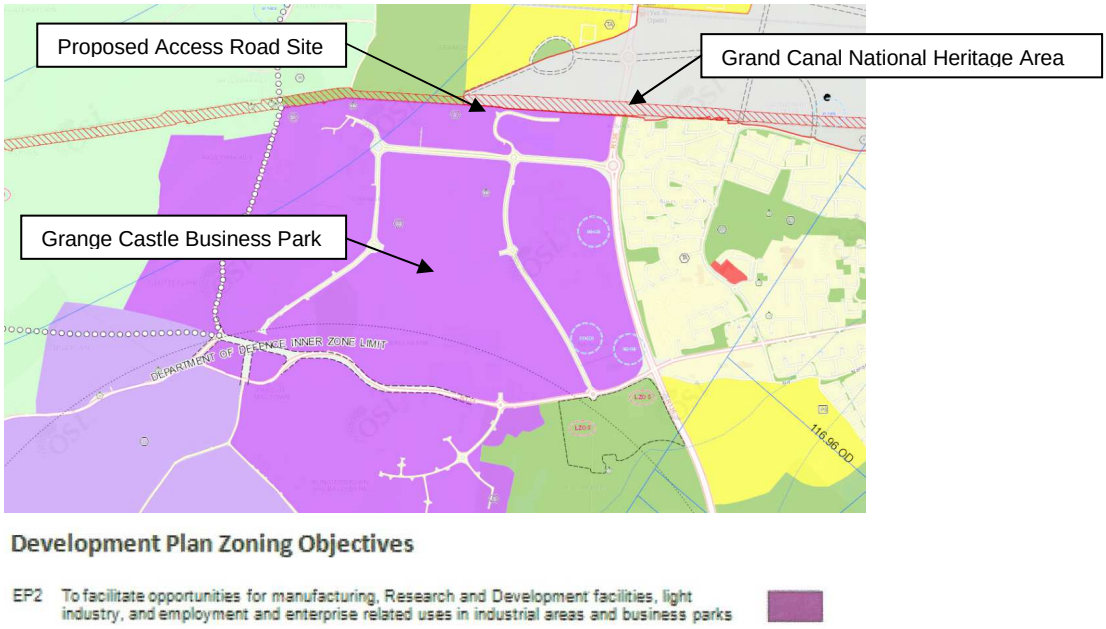


**Figure 1.3 Development Plan Zoning Plan**

# 3 Description of the Receiving Environment

## 3.1 Land Use

The proposed site is bounded to the north by the Grand Canal, to the east the Grange Castle lake carriageway, to the west the Grange Castle ESB 110kv Sub Station and to the south the Grange Castle dual carriageway. Overgrown grass is currently occupying the proposed site which in former times was utilised for agricultural use due to photographic evidence showing the proposed site been previously tilled.

As highlighted in chapter 2.2 of this report the proposed scheme is located within Zone EP2 (Enterprise Zoning Objective Two) which has an objective as follows:

*"To facilitate opportunities for manufacturing, Research and Development facilities, light industry, and employment and enterprise related uses in industrial areas and business parks."*

## 3.2 Existing Water Courses

The proposed scheme lies within the Griffeen River catchment. Surface water disposal from the scheme will be discharged to the Kilmahuddrick Stream and subsequently into the Griffeen River, which joins the River Liffey 5 km north of the site. The water from the Griffeen River enters the River Liffey and thereafter the Liffey channel into Dublin Bay.

There is also one proposed Natural Heritage Area (pNHA) in the vicinity of the proposed scheme, namely the Grand Canal proposed Natural Heritage Area (Site Code: 0002104). The proposed scheme bounds this site along its northern boundary.

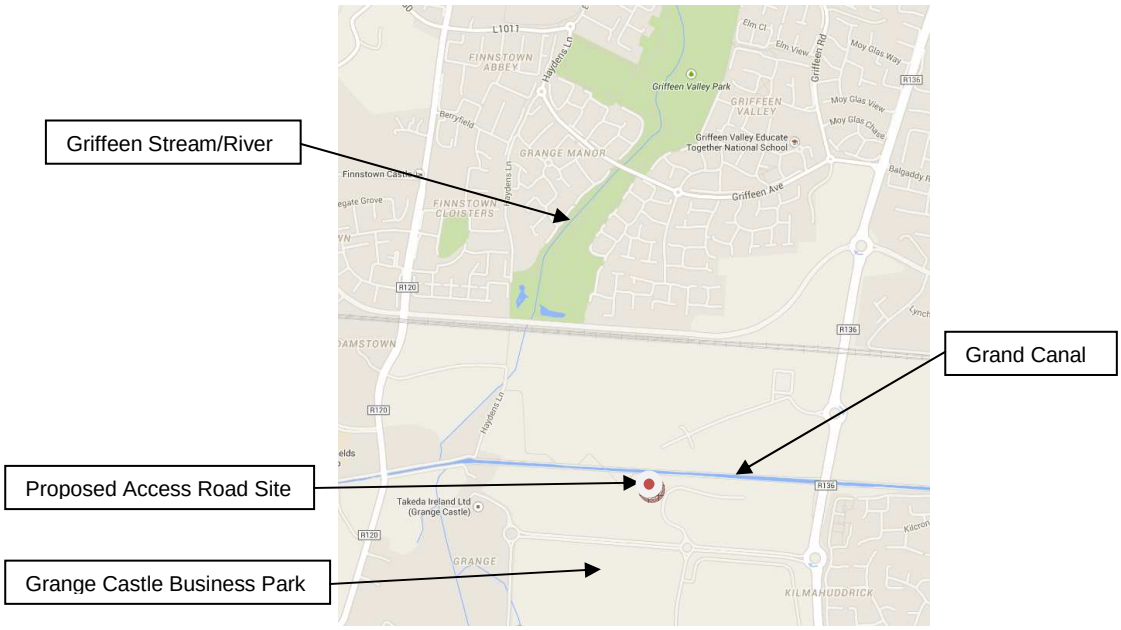


**Figure 1.4 Existing Water Course Mapping**

### 3.3 Material Assets

The Project comprises civil engineering works associated with the construction of 150m of a 6m wide Access Road leading into an undeveloped sites within Grange Castle Business Park.
The Scheme incorporates the construction of a new access road with turning area, footpath, cycle track and all associated landscaping, utilities and services.

The Access Road Scheme works include:

(a) Site Clearance.
(b) Construction of carriageway, footpaths and cycle tracks,
(c) Public Lighting
(d) Road Drainage
(e) Road and cycle track Lining.
(f) General Road Signage.
(g) Landscaping

# 4 Description of the Proposed Development

### 4.1 Proposed Access Road Works

The proposed works are detailed as follows:

- Site clearance
- Construction of new 6m wide bituminous access road including turning area for HGV's.
- Construction of new 2m wide raised cycle track.
- Construction of new 2m wide footpath and grass/landscaped verges.
- Construction of two new site entrances for the future site.
- Connection of proposed access road to the existing Grange Castle Lake Carriageway.
- Construction of two new uncontrolled crossing points with tactile paving for pedestrians and cyclists introduced.
- Replacement of affected trees/schrubs and introduction of new landscaping works throughout the scheme to match existing environs.
- Provision of new road drainage and associated works.
- Provision of new public lighting, CCTV surveillance cameras, road markings and signage where required.
- All associated site works as necessary to complete the scheme.

## 4.2 Contractors Site Facilities

Contractors site facilities will be located as close to the works as possible and include toilets, office(s), materials store(s) and a basic workshop to carry out minor maintenance of construction equipment. For security purposes the site facilities will be fenced and illumination will be provided.

## 4.3 Salient Equipment and Material Used During Construction

A list of salient equipment and materials used during the construction of the access road is given in Table 1.1 shown below.

| Equipment | Materials |
|---|---|
| ***Road construction*** | Wood |
| Pneumatic tools (e.g. hammers, compactors) | Signs |
| Generators | Stone, Gravel, Bitumen |
| Compressors | Concrete, precast concrete elements |
| Trucks | |
| Earth moving equipment (e.g. graders, front loaders) | Stone, Gravel, chippings, ducting, drainage pipes<br>Stocks of ducting, drainage pipes, precast manhole rings etc. |
| ***Contractors Site Facilities*** | |
| Fencing | Traffic management material (cones, signs etc) |
| Portable toilets | |
| Pre-fabricated office(s) | Fencing, Oil, grease, diesel drums |
| Diesel, oil and grease store(s) | Spare parts |

***Table 1.1***

## 4.3 Working Times During Construction

Generally construction activities will be confined to 8.00 am to 7.00 pm Monday to Friday and 8.00 am to 4.30 pm on Saturdays.

# 5 Environmental Aspects, Impacts and Mitigation Measures.

## *5.1 Methodology*

This Chapter describes how activities may interact with the environment during the construction and operational phases. This interaction is termed “environmental aspect”.

Each aspect directly or indirectly causes one or more environmental impacts under planned or unforeseen conditions. An unforeseen condition occurs as a result of an accidental event outside the scope of normal operation, which results in damage to material assets and direct or indirect impacts on human, wildlife and physical environments (e.g. motor vehicle collisions). For the purposes of this assessment short term impacts are three years or less.

Some of the Environmental impacts have been harvested from the commissioned surveys reports discussed in chapter 1.3 of this report. The remaining Environmental impacts have been predicted using a desktop study and a site scan. Impacts are rated under unmitigated circumstances, however numerous mitigation measures proposed in this Chapter will avoid, reduce or remedy most impacts.

## *5.2 Construction Phase*

Predicted environmental aspects, impacts and mitigation measures associated with constructing the Scheme’s main elements are given in this section.

### *5.2.1 Human Beings*

Predicted impacts on human beings include travel/access, employment, vehicular and pedestrian traffic movements and potential operational disruption to the Grange Castle Business Park.

**a) Employment**

| | |
|---|---|
| **Aspect:** | People will be employed to build the Scheme. |
| **Impact:** | Income will be generated for local businesses causing multiplier effects on the local economy. This will be a slight positive impact of short-term duration. |
| **Proposed Mitigation Measure(s):** | No mitigation measures required. |

**b) Employees and Visitors to Grange Castle Business Park**

| | |
|---|---|
| **Aspect:** | Construction activities associated with the works may cause some disruption to vehicular traffic within the Grange Castle Business Park (GCBP). It is anticipated that additional site traffic will traverse through the GCBP to and from the proposed site throughout the duration of the contract which may result in occasional congestion to the existing GCBP road infrastructure. |
| **Impact:** | • Traffic congestion due to the introduction of site traffic for duration of contract.<br>• Material overspill on existing GCBP roads along desired route to site during construction activity. |
| **Proposed Mitigation Measure(s):** | • Traffic management plan to be implemented to subdue potential impact.<br>• Daily road cleaning/sweeping along desired route to site to be carried out by contractor.<br>• Onsite wheel and undercarriage washing facility.<br>• Road users and local industries will be forewarned of possible traffic disruption through liaison, signage and other appropriate media and methods. |

### *5.2.2 Traffic*

It is anticipated that additional site vehicle traffic will be in service throughout the construction phase of the contract which may have an adverse effect on the existing traffic volumes that currently enter and exit Grange Castle Business Park.

| | |
|---|---|
| **Aspect:** | Congestion to vehicular traffic movements is likely during the construction of the scheme. In addition increased numbers of Works-related traffic, including material supply and removal and transportation of equipment and workers, will temporarily increase traffic demand along the desired route to the proposed site. |
| **Impact:** | • Traffic congestion due to the introduction of site traffic for duration of contract.<br>• Material overspill on existing GCBP roads along desired route to site during construction activity. |
| **Proposed Mitigation Measure(s):** | • Two-way traffic flow will be maintained along desired route to the proposed site during peak times for the duration of construction;<br>• Restrictions on traffic flow will be limited to hours outside of the morning and evening peak;<br>• Alternative routing will be provided if required;<br>• Traffic management arrangements shall be implemented daily to ensure disruption to existing traffic flows is kept to a minimum.<br>• Daily road cleaning/sweeping along desired route to site to be carried out by contractor.<br>• On site wheel and undercarriage cleaning to be provided.<br>• Road users and local industries will be forewarned of possible traffic disruption through liaison, signage and other appropriate media and |

| | |
|---|---|
| | methods. |

### *5.2.3 Third-Party Access Requirements during Construction*

It is not envisaged that there will be any negative impact during the construction process for the proposed access road regarding third party access to any of the occupying industries located within the Grange Castle Business Park.

| | |
|---|---|
| **Aspect:** | Potential access disruption to third party premises. |
| **Impact:** | Not envisaged |
| **Proposed Mitigation Measure(s):** | Not required |

### *5.2.4 Flora and Fauna*

| | |
|---|---|
| **Aspect:** | The proposed site for the access road is located south of the Grand Canal between the 11th and 12th lock that bounds the northern boundary of the Grange Castle Business Park. The Grand Canal is a designated conservation area (pNHA, Site Code: 2104). The canal provides a linear habitat for a variety of species including Bats and Otters and is of principal importance as a wildlife corridor extending into the Dublin conurbation to the east. As discussed in chapter 1.3 of this report, CSEA had commissioned three Bat and one Otter survey with respect to the proposed National Heritage Area (pNHA) attributed to the Grand Canal and Clonburris. In response to this, the general format of each of the reports outlined in chapter 1.3 were in accordance with guidelines recommended by the EPA (1995) Draft Guidelines on the Information to be contained in Environmental Impact Statements. Recommendations and evaluation techniques utilised are in general accordance with Guidelines for Baseline Ecological Assessment (Institute of Environmental Assessment, UK, 1995), Wildlife Impact: the treatment of nature conservation in environmental assessment (RSPB, 1995) and Guidelines for ecological evaluation and impact assessment (Regini, M. 2000). |
| **Existing Environment:** | The existing environment to the east, west and south of the proposed access road site has been discussed in chapter 3.1 of this report.<br>The main focus surrounding this chapter of this report is the pNHA attributed to the Grand Canal. The site for the Grange Castle access road is located to the south of the southern bank of the Grand Canal between 11th and 12th lock. It is this area located north of the proposed site that is required to be evaluated due to the potential environmental impact that the construction and operational process of the proposed access road may inflict on its surrounding environs.<br><br>***Existing Area of interest adjacent to proposed Access Road Site***<br><br>The area under consideration is bordered by hedgerows and tree lines along its southern bank. These include sycamore Acer pseudoplatanus, ash Fraxinus excelsior, willow Salix spp., mountain ash Sorbus aucuparia, alder |

| | |
|---|---|
| | Alnus glutinosa, birch Betula spp, hawthorn Crataegus monogyna, hazel Corylus avellana, elder Sambucus nigra, laurel Prunus spp. and some non-native conifers.<br><br>The Grand Canal itself is fringed by common reed Phragmites australis and sweet grass Glyceria maxima. Water quality appears to be good and the canal has a well-developed aquatic flora, including species such as bur reed Sparganium sp., pondweed Potomageton sp., water crowfoot Ranunculus circinatus, yellow waterlily Nuphar lutea and ivy-leaved duckweed Lemna trisulca.<br><br>***Existing Environment regarding Bats and their Habitats***<br><br>The Grand Canal is excellent as a bat foraging and commuting feature and its waters attract the many insects on which these animals forage. The canal also acts as a linear feature that is an easily navigable route by which bats can access the wider countryside and surrounding habitats.<br><br>The tall, mature trees along the canal offer bats potential roosting areas as some may have cracks, crevices and hollows which may be favourable for use by these animals. Ivy growth would also be welcomed for temporary roosting opportunities.<br><br>The legal status regarding all Irish Bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Act (2000). Also, the EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. Across Europe, they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions.<br>All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat Rhinolophus hipposideros is further listed under Annex II.<br><br>The current status and legal protection of the known bat species occurring in Ireland is given in Table 1.2 below.<br><br>NB: *Destruction, alteration or evacuation of a known bat roost is a notifiable action under current legislation and a derogation licence **has** to be obtained from the National Parks and Wildlife Service **before** works can commence.*<br><br>Furthermore, it should be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a licence to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by NPWS. The details with regards to appropriate assessments, the strict parameters within which derogation licences may be issued and the procedures by which and the order in relation to the planning and development regulations such licences should be obtained, are set out in Circular Letter NPWS 2/07 "Guidance on Compliance with Regulation 23 of the Habitats Regulations 1997 – strict protection of certain species/applications for derogation licences" issued on behalf of the Minister of the Environment, Heritage and Local Government |

on the 16th of May 2007 - reproduced in the Appendices.

| Common and scientific name | Wildlife Act 1976 & Wildlife (Amendment) Act 2000 | Irish Red Data Book status | Habitats Directive | Bern & Bonn Conventions |
|---|---|---|---|---|
| Common pipistrelle *Pipistrellus pipistrellus* | Yes | Internationally Important | Annex IV | Appendix II |
| Soprano pipistrelle *P. pygmaeus* | Yes | Internationally Important | Annex IV | Appendix II |
| Nathusius pipistrelle *P. nathusii* | Yes | Not referenced | Annex IV | Appendix II |
| Leisler's bat *Nyctalus leisleri* | Yes | Internationally Important | Annex IV | Appendix II |
| Brown long-eared bat *Plecotus auritus* | Yes | Internationally Important | Annex IV | Appendix II |
| Lesser horseshoe bat *Rhinolophus hipposideros* | Yes | Internationally Important | Annex II Annex IV | Appendix II |
| Daubenton's bat *Myotis daubentonii* | Yes | Internationally Important | Annex IV | Appendix II |
| Natterer's bat *M. nattereri* | Yes | Indeterminate | Annex IV | Appendix II |
| Whiskered bat *M. mystacinus* | Yes | Indeterminate | Annex IV | Appendix II |
| Brandt's bat *M. brandtii* | Yes | Not referenced | Annex IV | Appendix II |

***Table 1.2:*** *Legal status and protection of the Irish bat fauna*

Back in 2007, a survey of bat fauna was carried out by Mr. Conor Kelleher of Aardwolf Wildlife Surveys which also included a bat detector study. Presence of bats is indicated principally by their signs, such as staining, lack of spider webs, feeding signs or droppings - though direct observations are also occasionally made. The nature and type of habitats present are also indicative of the species likely to be present. The field survey was supplemented by evaluation of relevant literature and existing information. Potential bat roosting sites were surveyed in daytime and a night time survey was conducted with the use of heterodyne bat detectors (BATBOX Duet and Pettersson D200). There were no seasonal or climatic constraints in regard to bat survey. Bat activity during the survey was high with several species and many individuals being observed. July is within the active bat season and juvenile bats are also making their first flights this month

Of the ten Irish bat species, four were found to be present on site and others are expected to occur occasionally. As the surrounding habitats mainly consist of built-up urban areas to the east and south with some improved agricultural grasslands to the west and north, the diversity of bat fauna is limited and species associated with woodlands are absent as a result.

However, both common and soprano pipistrelles were detected feeding along the boundary treelines and hedgerows along the canal and over its waters. These two species were the most numerous of the bats encountered with c15 passes being recorded and mainly foraged along the treelines at the centre and western end of the proposed scheme between the 5$^{th}$ and 11$^{th}$ Locks.

Several specimens of Daubenton's bat were detected foraging over the canal and throughout its course but again most passes were at the western end which is less built-up. These bats spread out to different sections along linear water bodies and are often found patrolling singly.

About six individuals were noted between the centre of the proposed

scheme and the western end.

Leisler's bat was heard in several locations flying high over the site; near the 4th, 6th and 9th Locks and near the M50 overbridge. Although these may have been separate animals they may also have been a single individual as the species can cross open space very rapidly.

Brown long-eared bat, although undetected during the present survey, is expected to occur on site occasionally.

Another species which may be expected to be present on site occasionally is Nathusius' pipistrelle (Richardson, 2000) but it was not encountered during the present survey.

***Existing Environment regarding Otters and their Habitats***

An Otter survey was carried out by Mr. Jullian Reynolds, assisted by Sylvia Reynolds, on the 31st of December 2012. Both northern and southern banks of the canal were surveyed, starting from the Grange Castle Outer Ring Road Bridge along the southern side to the 12th Lock Bridge, a distance of some 1.5 km centred on the new bridge site at the Grange Castle Business Park, and returning along the north bank. This stretch of canal is elevated above the surrounding countryside, and bordered by low-lying fields, some under development, from which it is separated by linear woodland, swampy ground and ditches.

The southern bank has been developed as a pedestrian and cycle way, with paving, lamp standards and hard stands with seating at intervals. The banks were regraded and still weedy, and lacked established grassy vegetation or any potential sprainting sites. Away from the canal to the south the bank falls away abruptly to a linear zone of swampy woodland and drains. There were occasional animal 'runs' down this bank, but not linked to emergence places from the canal which appeared to have been made by swans and dogs. Therefore, **no definite signs of otters could be detected for the southern bank.**

By contrast, the northern bank is more natural, with a slightly raised grassy bank backed by a narrow roadway or grassy towpath and, behind it, depressions with ditches, trees and hedgerows separating the bank zone from pastureland. This constitutes a valuable wildlife corridor.

Otter spraints (droppings) were first noted on the northern bank near the 12th Lock bridge at the Griffeen Stream underpass (Site A). Otters have been known to use the Griffeen, and probably continue to do so. Further extensive sprainting was seen along the canal bank from the proposed bridge site near Lynch's Lane (Site B), almost as far as the Outer Ring Road Bridge (see map). Survey details of the northern bank sites are given below.

**A.** Canal north bank: Grassy canal bank above Griffeen Stream underpass and across from outflow. There were a number of old spraints containing fish remains and a fresh one, with remains of a berried crayfish.

**B.** A major sprainting area from just east of where Lynch's Lane branches away from the canalside road, and continuing almost up to the Outer Ring Road bridge, with spraints seen at intervals of several metres. A number of animal runs led from the towpath northwards to the linear wooded area with ditches bordering the pastures.

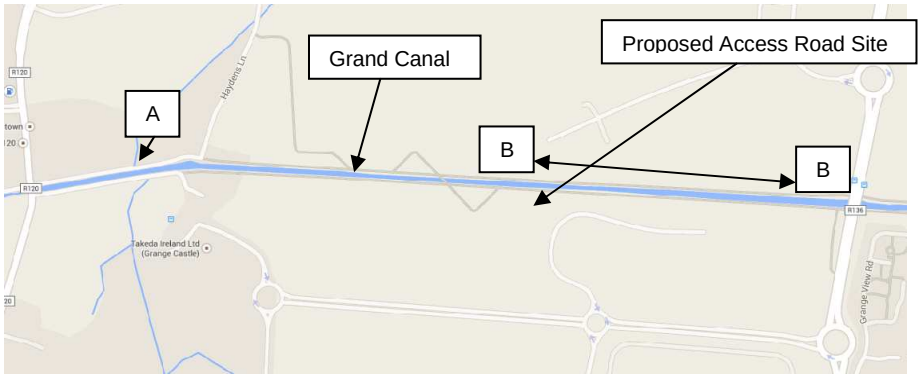


**Figure 1.5 Otter Survey Mapping**

**Impact:**

***Flora and Fauna***

The proposed Grange Castle access road will have no impact on the proposed National Heritage Area (pNHA) attributed to the Grand Canal which lies north of the site with respect to Flora and Fauna. The access road site, which can be viewed in chapter 1.5, Fig 1.1, provides an extension to the existing flora and fauna already established along the southern side of the Grand Canal. The only negative impact attributed to this scheme would be the potential of noise, vibration, fumes and excessive dusting during site works.

***Bat Species:***

The proposed development may inevitably lead to some loss of roosting, commuting and foraging opportunities for bats, with impacts on bats considered to be negligible to minor given the extent of hedgerow in the vicinity which will be unaffected by the development, impacts arising from the loss of roosting and foraging habitat, if offset with suitable mitigation measures, may be considered as negligible to minor.

Although some bat species are light tolerant e.g. pipistrelles and Leisler's, many are not. The impact of lighting overspill onto the southern area of the Grand Canal could be assumed to deter both brown long-eared bat and, more especially, Daubenton's bat, both of which shun light, from using the proposed lit area. A new Public Lighting system is proposed along the northern side of the future Grange Castle access road.

***Otter Species:***

As mentioned previously, an Otter survey was carried out by Mr. Jullian Reynolds, assisted by Sylvia Reynolds, on the 31st of December 2012. Both northern and southern banks of the canal were surveyed, starting from the Grange Castle Outer Ring Road Bridge along the southern side to the 12th

| | |
|---|---|
| | Lock Bridge, a distance of some 1.5 km centred on the new bridge site at<br><br>the Grange Castle Business Park, and returning along the north bank.<br><br>The final report established that no definite signs of otters could be detected along the southern bank which is in close proximity of the proposed Grange Castle Access Road site.<br><br>Mr. Roger Goodwillie has additionally stated, through information obtained from Mr. Julian Reynolds who has a good knowledge of the animals as well as supervising research on them when he was employed by Trinity College Dublin, that with regards to lighting, this would only be a deterrent to otters on an open bank without cover – and even then not a total deterrent. He mentions that otter spraints (droppings) are regularly found on the steps down to the Liffey at O'Connell Bridge so that the animals can adapt to noise, light and people in their vicinity provided there is food available.<br><br>As stated above, no definite signs of otters could be detected along the southern bank of the Grand Canal. Therefore the impact on otters from proposed public lighting system attributed to the future access road will be negligible. |
| **Proposed Mitigation Measure(s):** | ***Flora and Fauna***<br><br>Throughout the duration of the works, noise and vibration shall be kept to a minimum and the Contractor will take all necessary steps to abate these to avoid inconvenience to the general public and its surrounding environs.. Reference will be made to BS5228-1&2 – Code of practice for noise and vibration control on construction and open sites.<br><br>As mentioned previously, the flora and fauna attributed to the southern bank of the Grand Canal which bounds the northern extent of the proposed access road will be extended though additional planting which will mirror what is already in existence.<br><br>***Bat Species:***<br><br>Lighting shall be avoided where possible as it deters some bat species from foraging especially brown long-eared and Daubenton's bats that are presently using the canal area.<br><br>Where lighting is thought unavoidable and necessary, the impact on bats shall be minimised by using low pressure sodium lamps instead of high pressure sodium, mercury or metal halide lamps.<br><br>Lighting shall be targeted to where it is needed and overspill shall be avoided. This shall be achieved by the design of the luminaire and by using accessories such as hoods, cowls, louvres and shields to direct the light to the intended area only.<br><br>The lighting mount shall be as short as possible as light at a limited height reduces the ecological impact. However, there are cases where a taller column would enable light to be directed downwards at a more acute angle and thereby reduce horizontal spill and this shall be considered.<br><br>The intensity of the lighting shall be as low as guidelines permit and not more than 3 lux at ground level within effected areas. |

| | |
|---|---|
| | The provision of an automatically timed and variable intensity lighting system to lessen the impacts to these animals which will set an example for other such developments that may be confronted with issues of similar nature . As such, information panels will be included as part of the scheme to explain the reasons for the seasonal difference in intensity which will highlight the importance and conservation value of bats locally and increase public awareness of these useful animals.<br><br>The main species of concern on the Grand Canal is Daubenton's bat as this species, unlike pipistrelles and Leisler's bat, shies away from lighting. This species emerges later in the evening than the former ones at approximately 45 minutes to 1 hour after sunset which, during their active period, will be after the main work commuting hours from 5 – 7pm even during the early season in March and late season at the end of September so impact, if any, should be minimal.<br><br>Given successful implementation of the recommended mitigation measures, it is considered that bats of each species observed on site, including brown long-eared and Daubenton's, should persist in the area<br><br>***Otter Species:***<br>It has been established that no definite signs of otters could be detected along the southern bank of the Grand Canal. Therefore no mitigation measures are suggested. |

### *5.2.5 Soil & Groundwater*

| | |
|---|---|
| **Aspect:** | Spillage and\or leakage of petrochemicals from petrochemical storage facilities, construction vehicles etc. onto soils. |
| **Impact:** | Potential contamination of soils and receiving waters during construction activity. |
| **Impacts:** | • The underlying soils and aquifer may be at risk from accidental spillages of oils and chemicals that could contaminate soils and groundwater.<br>• Suspended solids from earthwork activities could enter receiving waters causing pollution. |
| **Proposed Mitigation Measure(s):** | The impact to the soil and underlying groundwater is predicted to be neutral provided the following mitigation measures are implemented.<br><br>• Topsoil excavated, as part of the works shall be reused in reinstatement and landscaping.<br>• A Pollution Control Plan shall be in place for the construction stage. The plan shall incorporate measures such as:<br><br>- Minimisation of the area and period of time that soil will be exposed;<br>- Designating appropriate locations and methods for storing soils/aggregates and for any oils/lubricants and other potentially polluting substances involved in the construction process; |

| | |
|---|---|
| | - Inspection/certification to ensure that vehicles are leak free prior to access to site;<br>- Use of temporary sediment trapping/settling devices;<br>- Re-vegetating/stabilising exposed areas as soon as practicable<br>- An emergency plan to deal with accidental spillages. |

### *5.2.6 Water*

| | |
|---|---|
| **Aspect:** | Surface water drainage exists on all existing roads in the vicinity of the proposed site.<br>The scheme is in close proximity of the Griffeen Stream, Grand Canal and the Grange Castle Lake. |
| **Impact:** | • Interference with, or cutting off of, existing land drains and ditches where they are crossed.<br>• Scheme works in the vicinity of the Griffeen Stream and the Grand Canal may negatively impact on the existing river environment. |
| **Proposed Mitigation Measure(s):** | • All construction works adjacent to existing watercourses will require the use of shielding to avoid any contamination from construction activities. A Pollution Control Plan shall be in place for the construction stage. |

### *5.2.6 Air & Noise*

**a) Noise**

| | |
|---|---|
| **Aspect:** | Generation of noise near commercial premises during working hours by the operation of construction vehicles and equipment and by trucks travelling from construction sites. |
| **Impact:** | There may be noise nuisance impact to commercial premises in the vicinity of the Scheme. These negative impacts will be of short-term duration. |
| **Proposed Mitigation Measure(s):** | • Construction activities taking place outside the period between 8.00 am and 7.00 pm must receive written permission from the Employers Representative and South Dublin County Council. This excludes the pumping out of excavations (if required), security and emergency works;<br>• Construction vehicles and equipment will be properly maintained;<br>• Equipment used intermittently will be shut down or throttled back to a minimum during periods when not in use;<br>• All vehicles and equipment will where appropriate, be fitted with exhaust silencers. |

**b) Vibration**

No perceptible impacts caused by vibration are predicted during the construction phase.

**c) Lighting**

| | |
|---|---|
| **Aspect:** | Night time security lighting at the contractor's site facilities may be provided near residences. |
| **Impact:** | If contractor's site facilities are located in close proximity to commercial premises there may be a slight short-term light disturbance. |

| | |
|---|---|
| **Proposed Mitigation Measure(s):** | • Light impact from the contractor's site facilities will be minimised.<br>• Lighting will be directed onto the contractor's site facilities and work surfaces and away from adjacent commercial premises to minimise any potential impact.<br>• The mitigation of light has been designed and lighting standards to protect bats in valley as outlined under 5.2.4 Flora and Fauna above. |

### *5.2.7 Climate/Air Quality*

| | |
|---|---|
| **Aspect:** | The prevailing wind in Ireland is from a quadrant centred on west-southwest. These are relatively warm winds from the Atlantic and frequently bring rain. Easterly winds are weaker and less frequent and tend to bring cooler weather from the northeast in spring and warmer weather from the southeast in summer.<br>Wind characteristics vary between a gentle to moderate breeze throughout the year. Annual average wind speeds range between 8.7 and 14.1 knots with highest wind speeds occurring during winter months. Lowest wind speeds occur in the June, July and August period. On average there are approximately 20.3 days per year with gales. The mean yearly precipitation level is 711.4mm.<br>The mean yearly temperature for the area is 9.3o C. The month showing the highest average temperature is July with a temperature of 15.2 o C. The lowest average monthly temperature of 4.6 o C occurs in February.<br>The greatest threat to the existing climate conditions in Ireland is from greenhouse gas emissions and global warming. According to the National Climate Change Strategy the Republic of Ireland emissions of greenhouse gases in 1990 were equivalent to 55.6 million tonnes (Mt) of CO2. Actual figures from 2004 indicate that emissions of greenhouses gases in Ireland were 23% above the 1990 levels. It is predicted that without the measures outlined in the National Climate Change Strategy this figure could rise to 37% by 2010. |
| **Impact:** | There are no perceptible impacts on climate during the construction phase. There may be a dust impact on nearby commercial premises, however this impact may be a slight nuisance or imperceptible. |
| **Proposed Mitigation Measure(s):** | • Frequent dust suppression will take place on exposed soil surfaces;<br>• Stored materials emitting dust will be covered when not in use;<br>• Dust monitoring will take place at sensitive industries whose activities and\or products may be negatively impacted on. |

### *5.2.8 Landscape*

| | |
|---|---|
| **Aspect:** | Change of landscape due to construction activities. |
| **Impact:** | The construction phase of the project in general will have a moderate impact on its surrounding environs, as this will result in the addition of construction machinery, an increase in dust, and other temporary structures being added to the landscape and viewed throughout the process. The removal of existing vegetation is also an impact undertaken during construction. |
| **Proposed Mitigation Measure(s):** | • In the landscape design, the planting arrangement shall closely match the existing arrangement located along the southern bank of the Grand Canal<br>• The mitigation of light has been designed into and lighting standards to protect bats in valley as outlined under 5.2.4 Flora and Fauna above. |

### *5.2.9 Material Assets*

These impacts include public utilities such as gas, water, drainage, electricity, telecommunications etc..

**a) Public Utilities**

| | |
|---|---|
| **Aspect:** | Potential disruption of electricity, water, gas or water services to commercial premises under planned and unforeseen conditions. |
| **Impact:** | The impact may be an inconvenience to commercial premises. |
| **Proposed Mitigation Measure(s):** | • Excavation works will be carried out by contractors working under the supervision of the relevant utility company to ensure conformity to technical specifications and standards as well as to minimise the interruption of service;<br>• When disruption is planned, affected industries will be forewarned of disruptions to services using signage in public places and other appropriate media;<br>• When disruption is unplanned, the disrupted service will be repaired as soon as practicably possible. |

### *5.2.10 Cultural Heritage*

| | |
|---|---|
| **Aspect:** | The proposed site for the access road is located to the south of the Grand Canal. The Grand Canal falls within the proposed National Heritage Area. |
| **Impact:** | The canal provides a linear habitat for a variety of species including Bats and Otters and is of principal importance as a wildlife corridor extending into the Dublin conurbation to the east. The only negative impact attributed to this scheme would be the potential of noise, vibration, fumes and excessive dusting during site works. |
| **Proposed Mitigation Measure(s):** | Throughout the duration of the works, noise and vibration shall be kept to a minimum and the Contractor will take all necessary steps to abate these to avoid inconvenience to the general public and its surrounding environs.. Reference will be made to BS5228-1&2 – Code of practice for noise and vibration control on construction and open sites. |

## 5.3 Operational Phase

Predicted environmental aspects, impacts and mitigation measures associated with the operation of the Scheme are given in this section.

### 5.3.1 Human Beings

No perceptible negative impacts on employment are predicted during the operational phase.

### 5.3.2 Vehicular and Pedestrian Traffic

| | |
|---|---|
| **Aspect:** | The effect the finished scheme will have once its brought into service. |
| **Impact:** | Additional Traffic Volumes attributed to the finished scheme that will utilise the two site access contained within the access road scheme. |
| **Proposed Mitigation Measure(s):** | Existing road infrastructure attributed to Grange Castle has capacity to accommodate the future development that will use the constructed access road. Therefore, no mitigation measures required. |

### 5.3.3 Flora and Fauna

No perceptible impacts on flora and fauna are predicted during the operational phase. Mitigation measures implemented during construction phase and maintained as relevant to protect flora and fauna in particular Bat and Otter species identified earlier in the report.

### 5.3.4 Soil

No perceptible impacts on soil and groundwater are predicted during the operational phase.

### 5.3.5 Air & Noise

A description of the existing environment can be seen in section 5.2.4

**a) Noise**

| | |
|---|---|
| **Aspect:** | Additional traffic users |
| **Impact:** | Traffic noise will be generated by traffic stopping and starting, including increased engine noise etc. |
| **Proposed Mitigation Measure(s):** | Encourage employees to cycle, walk, car share and use public transport. |

**b) Vibration**

No perceptible impacts caused by vibration are predicted during the operational phase.

### *5.3.6 Climate/Air Quality*

No perceptible impacts on climate or air quality are predicted during the operational phase.

### *5.3.7 Landscape*

| | |
|---|---|
| **Aspect:** | The existing landscape will change due to the introduction of the access road. |
| **Impact:** | The proposed scheme predominantly involves the introduction of a 6m wide access road with raised cycle track and footway over its length including a new public lighting scheme. This scheme, when brought into service will blend into the existing environment of Grange Castle Business Park. |
| **Proposed Mitigation Measure(s):** | The finished landscaping associated with the access road will match the existing flora and fauna located along the southern bank of the Grand Canal. This needs to be maintained to ensure it flourishes in its surrounding environs. |

### *5.3.8 Material Assets*

No perceptible impacts on material assets are predicted during the operational phase.

### *5.3.9 Cultural Heritage*

No impacts on Cultural Heritage are predicted during the operational phase.

# 6 Conclusion

The predicted environmental impacts associated with the construction and operational phases of the proposed Grange Castle Access Road have been investigated and discussed thoroughly throughout this report. In conclusion, the construction phase of this project poses the only realistic threat to the surrounding environment and it co-habitants. The area under scrutiny is predominantly focused along the southern bank of the Grand Canal which falls under protected lands attributed to the proposed National Heritage Area that bounds the northern boundary of the proposed site. The negative impact surrounding the construction phase of this scheme could be considered the only realistic threat to the surrounding environment with regards to the potential of noise, vibration, fumes and excessive dusting during the proposed site works. To mitigate the above mentioned negative impact, it is recommended that noise, vibration and the anticipated fumes and excessive dusting arising during the proposed site works should be kept to a minimum where the Contractor will take all necessary steps to abate these to avoid inconvenience to the general public and its surrounding environs. Furthermore, reference will be made to BS5228-1&2 – Code of practice for noise and vibration control on construction and open sites to ensure disruption is controlled and kept to a minimum.

It has also been established with regards to the Otter population that no definitive signs of otters had been detected during the survey along the southern bank of the Grand Canal. Therefore no mitigation measures are required to be implemented during and after the construction and operational phases for the proposed scheme.

With regards to Bats and given the fact that the proposed site does not require any removal or disturbance to the existing flora and fauna located north of the site and south of the Grand Canal, the environmental impact on the existing Bat population and its habitation should be considered negligible to minor. The only realistic impact that the construction and operational phase could pose on the Bat population would be the installation and erection of the temporary and permanent lighting system attributed to the scheme. However, if the recommended mitigation measures outlined in chapter 5.2.4 are implemented then each of the Bat species observed during the Bat survey should persist without apprehension within the area.

**Clifton Scannell Emerson Associates Limited**, Civil & Structural Consulting Engineers
Seafort Lodge, Castledawson Avenue, Blackrock, Co. Dublin, Ireland.

T. +353 1 288 5006 F. +353 1 283 3466 E. info@csea.ie W. www.csea.ie