

# Natura Impact Statement

## Ballinrooaun Quarry, Co. Wexford Continuation and Extension Development

in support of the Appropriate Assessment Process

**Prepared for:**

Enviroguide Consulting



On behalf of MK Silversands Ltd.



**Prepared by:**

Ecology Ireland Ltd.



**April 2020**

# Natura Impact Statement

## Ballinrooaun Quarry, Screen, Co. Wexford Continuation and Extension Development

In support of the Appropriate Assessment Process



Document Rev. No.	Details	Contributors	Date
0	Report for Issue	MK/GF	07/04/2020
1	Final Version for Issue	MK/GF	14/04/2020

## Table of Contents

1	Introduction.....	1
1.1	Background to AA Process.....	2
1.2	Methodology .....	3
1.2.1	Guidance.....	3
1.2.2	Information Consulted for this Report.....	4
2	Stage 1: Screening for Appropriate Assessment .....	6
2.1	Brief Description of the Site & Project – including Planning History.....	6
2.1.1	Site Location .....	6
2.1.2	Site Overview.....	7
2.2	Description of the Natura 2000 Sites .....	11
3	Stage 1: Assessment Criteria .....	20
3.1	Elements of the Project Likely to Impact on the Natura 2000 Sites.....	20
3.1.1	Direct Habitat Loss .....	20
3.1.2	Indirect Habitat Loss or Deterioration.....	20
3.1.3	Disturbance / Displacement of Fauna .....	22
3.1.4	Potential Significant Effects: Conclusion .....	23
3.2	Likely Impacts of the Project on the Natura 2000 Sites .....	23
3.2.1	Size, Scale & Land-take.....	23
3.2.2	Distance from or Key Features of the Natura 2000 Sites.....	24
3.2.3	Resource Requirements (water abstraction <i>etc.</i> ) .....	24
3.2.4	Excavation Requirements.....	24
3.2.5	Emission (disposal to land, water or air) .....	24
3.2.6	Transportation Requirements.....	25
3.2.7	Duration of Operations .....	25
3.2.8	Cumulative and In-combination Effects.....	25
3.3	Likely Changes to the Natura 2000 Sites .....	25
3.3.1	Reduction of Habitat Area.....	25
3.3.2	Disturbance to Key Species .....	25
3.3.3	Habitat or Species Fragmentation.....	26
3.3.4	Reduction in Species Density.....	26
3.3.5	Changes in Key Indicators of Conservation Value (water quality <i>etc.</i> ) .....	26
3.4	Likely Impacts on the Natura 2000 Sites as a Whole .....	26
3.4.1	Interference with the Key Relationships that Define the Structure and Function of the Natura 2000 Sites.....	26
3.5	Indicators of Significance as a Result of the Identification of Effects Set Out Above .....	26
3.5.1	Loss.....	27
3.5.2	Fragmentation.....	27
3.5.3	Disruption.....	27

3.5.4	Disturbance .....	27
3.5.5	Change to Key Elements of the Site .....	27
3.6	Elements of the Project Likely to Significantly Impact on the Natura 2000 Sites or where the Scale or Magnitude of Impacts are Unknown .....	27
4	Natura Impact Statement.....	29
4.1	Impact Assessment.....	39
4.1.1	Characterising Impacts .....	39
4.1.2	Potential Effects from the Proposed Development to Qualifying Habitats and Species of Natura 2000 Sites within the Project Zone of Influence.....	40
4.2	Best Practice Design and Mitigation Measures.....	40
4.2.1	Groundwater Drainage.....	40
4.2.2	Wind-Blown Dust/Sand Deposition.....	41
4.2.3	The Spread of Invasive Plants.....	41
4.2.4	Restoration .....	42
4.3	NIS Summary and Conclusion.....	42
4.3.1	Integrity of The Site .....	42
4.3.2	Integrity of the Natura 2000 Sites within the Project Zone of Influence .....	43
4.4	Conclusion .....	47
5	References.....	48

For inspection purposes only.  
Consent of copyright owner required for any other use.

## Executive Summary

This document comprises the results of a Natura Impact Statement (NIS), which is part of the appropriate assessment screening process to determine the likelihood of significant impacts on Natura 2000 sites in relation to the extension of quarrying and associated infill and restoration activities, at Ballinrooan Quarry, Screen, Co. Wexford. It was determined that likely significant effects may arise that, in the absence of adequate mitigation, could adversely impact upon four Natura 2000 sites within the project Zone of Influence (Zoi); Wexford Harbour & Slob SPA, Slaney River Valley SAC, Screen Hills SAC, and The Raven SPA.

Following the application of detailed mitigation measures and environmental controls, it is objectively concluded that there will be no adverse impacts on the integrity of the aforementioned Natura 2000 sites in relation to proposed development.

*For inspection purposes only.  
Consent of copyright owner required for any other use.*

## 1 Introduction

Ecology Ireland Wildlife Consultants Ltd. was commissioned by Enviroguide Ltd. on behalf of MK Silversands Ltd., to produce an assessment of the potential impacts of the planned continuation and extension of quarrying and associated infill and restoration activities, at Ballinrooan Quarry, Screen, Co. Wexford, on designated conservation sites in the wider area. This assessment was undertaken as part of an application by the client for a waste licence, where European designated conservation sites are present in the wider surrounding area. Previously, the extension to the existing quarry had been subject to a planning application and appeal, including the submission of an Environmental Impact Assessment Report (EIAR) and Screening Report in support of the Appropriate Assessment (AA) process (P17/1532; ABP 301615-18).

Planning permission was approved by the Planning Authority, Wexford County Council, and upon appeal by An Bord Pleanála (ABP) for the development in question. A waste license has been sought from Environmental Protection Agency (EPA) and they have determined that a Natura Impact Statement should be provided to accompany the application (Correspondence 14<sup>th</sup> February 2020 in relation to W0305-01) concluding:

*“That the proposed activity is not directly connected with or necessary to the management of any European site and that it cannot be excluded, on the basis of objective information, that the proposed activity, individually or in combination with other plans or projects, will have a significant effect on any European site and accordingly determined that an Appropriate Assessment of the proposed activity is required, and for this reason determined to require the applicant to submit a Natura Impact Statement. The proposed activity is directly adjacent to Screen Hills SAC (000708), it is hydrologically connected to Slaney River Valley SAC (000781) and Wexford Harbour & Slob SPA (004076) and it is in close proximity (c. 2.2 kms) to The Raven SPA (004019).”*

The waste license seeks permission from the agency for inert waste recovery, providing for phased restoration of the sand and gravel pit. It is proposed to import and recover, inert soil and stone to progressively backfill the quarry void. It is proposed that a total of c. 1.35 million tonnes of inert materials (soil and stone) will be accepted to site, with a maximum of 80,000 tonnes of inert materials accepted per annum for this purpose. Ballinrooan Quarry has operated as a permitted sand and gravel quarry for many years (original Planning Ref. 2008/2323). The existing permitted quarry site is c. 5.5 ha in area. It is planned to extend quarrying for sand and gravel within an area of agricultural grassland (and comprising part of the existing quarry) of c. 8.45 ha. The quarry floor will remain at a minimum of 5 m above the high-water table at all times. As a result, there will be no requirement for pumping or storage of groundwater. Due to the permeable substrates in the proposed site, rainfall will permeate the quarry floor to re-charge groundwater, and surface water run-off is predicted to be minimal.

Ecology Ireland Wildlife Consultants Ltd. (Ecology Ireland) completed a comprehensive desktop review and detailed field surveys to inform the ecological impact assessment (EclIA) as part of the EIAR for the proposed quarry extension (P17/1532; ABP 301615-18). Ecology Ireland had also previously prepared the EclIA for an unsuccessful application for the extension of the quarrying activities at this site (P2016/0261 & PL26.246680). The 2016 planning application sought permission for a considerably larger site with a greater range in elevation. The current extraction plan will involve the stripping of the topsoil (c. 0.3m) and upper 3m of sandy soil will be stockpiled separately to be used in progressive site restoration. The site boundary

overlaps the original development and includes lands to the west and southwest of the existing quarry (Figure A6.2).

## 1.1 Background to AA Process

A screening assessment is part of an appropriate assessment process that consists of up to four stages, where each stage follows on from the preceding one. In Stage 1, a screening process is undertaken to identify whether significant impacts on a Natura 2000 site are likely to arise from the project or plan in question. If significant impacts are likely to occur, then the process moves on to Stage 2 where an appropriate assessment (AA) considers potential mitigation measures for adverse impacts. If it is considered that mitigation measures will not be able to adequately minimise potential adverse impact on a Natura 2000 site then an assessment of alternative solutions is considered in Stage 3. This may then be followed by Stage 4 of the process in the event that adverse impacts remain and the proposed activity or development is deemed to be of Imperative Reasons of Overriding Public Interest (IROPI), allowing an assessment of compensatory measures to be considered. The outcome of a Stage 2 and higher assessment is presented in a report known as a Natura Impact Statement (NIS).

The first part of the assessment is a screening process to identify whether significant<sup>1</sup> effects on a Natura 2000 site are likely to arise from the project or plan in question, in view of best scientific knowledge and in light of the conservation objectives of any relevant European sites, when considered as an individual project or in combination with other plans and projects. If significant effects are likely to occur or if it is unclear whether significant effects are likely to occur, then the process moves onto the next phase where the project is subject to an appropriate assessment (AA) to determine whether the plan or project would directly affect the integrity of a European site. At this stage, potential mitigation measures for adverse impacts identified in Screening are considered. Typically, a Natura Impact Statement (NIS) is prepared by consultants on behalf of the promoter/developer of a plan or project and this is part of the information used by the competent authority in carrying out an Appropriate Assessment of the proposed plan or project. If the competent authority is satisfied that the plan or project will not adversely affect the integrity of the site concerned, it may approve the project. If it is considered that mitigation measures will not be able to satisfactorily reduce potential adverse impact on a Natura 2000 site then an assessment of alternative solutions is considered in third phase of the assessment process. If adverse impacts remain and the proposed activity or development is deemed to be of Imperative Reasons of Overriding Public Interest (IROPI), the final assessment step permits consideration of permission for development with consideration of compensatory measures.

While a screening assessment appraisal or NIS may be provided by the advocate of the plan or project in question, the AA itself is undertaken by the competent authority (*e.g.* the planning authority and An Bord Pleanála). So, in this case, the Appropriate Assessment for the project, described herein, is undertaken by

---

<sup>1</sup> A European Court of Justice ruling in 2013 (Case C-258/11) has stated the following regarding significant effect: "Where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site."

the EPA; informed by this Screening for AA and NIS and any other relevant information provided or available to the statutory body.

## 1.2 Methodology

This report presents in brief the outcome of a Screening for Appropriate Assessment before proceeding to Stage 2 NIS. The subsequent NIS is prepared to identify whether the proposed residential development, in view of best scientific knowledge and in light of the conservation objectives of any relevant European sites, when considered as an individual project or in combination with other plans and projects, will have an adverse effect on the integrity of any European Site.

It is important to emphasise that a screening assessment does not have to ascertain the existence of a significant effect or impact on a Natura 2000 site as such; it only has to establish whether a significant effect or impact is possible or may occur (as per judgement by Ms. Justice Finlay Geoghegan; see guidelines below). At the NIS stage, all mitigation measures necessary to avoid, reduce or offset negative effects are considered.

The conservation objectives of Natura 2000 sites have been compiled by the National Parks & Wildlife Service (NPWS) in relation to the habitats and species (*i.e.* qualifying interests) for which the sites are selected. These conservation objectives are referred to when carrying out appropriate assessments for plans and projects that might impact on these sites.

### 1.2.1 Guidance

Documents associated with the proposed development and relevant ecology databases were consulted as part of this assessment. Dr Gavin Fennessy (who produced this Screening for AA and NIS) carried out baseline field studies of the site in order to inform the EclA and Screening Assessment. The following guidelines and legal judgements were used in the completion of this assessment;

- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – European Commission Methodical Guidance on the provisions of Article 6(3) and 6(4) of the ‘Habitats’ Directive 92/43/EEC (European Commission 2001)
- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DoEHLG 2009 & Revised 2010)
- Integrated Biodiversity Impact Assessment – Streamlining AA, SEA and EIA Processes: Practitioner’s Manual (EPA 2013)
- European Court of Justice Ruling 11<sup>th</sup> April 2013 Case C-258/11 Peter Sweetman and Others v An Bord Pleanála - Criteria to be applied when assessing the likelihood that N6 Galway City Outer Bypass road scheme will adversely affect the integrity of Lough Corrib SAC
- High Court Ruling 25<sup>th</sup> July 2014 by Ms. Justice Finlay Geoghegan; Neutral Citation [2014] IEHC 400; High Court Record No. 2013 802 JR; Kelly -v- An Bord Pleanála – Judicial review of grant of planning by An Bord Pleanála for two wind farm phases in County Roscommon
- High Court Ruling 24<sup>th</sup> November 2014 by Mr. Justice Hedigan; Neutral Citation [2014] IEHC 557; High Court Record No. 2014 320 JR; Rossmore Properties Limited & Anor -v- An Bord Pleanála



- High Court Ruling 25th February 2016 by Mr. Justice Barton. Neutral Citation [2016] IEHC 134; High Court Record No. 2013 450 JR; Balz & Anor -v- An Bord Pleanála.
- European Court of Justice ruling 12<sup>th</sup> April 2018 in respect of Case C-323/17 (People Over Wind & Sweetman) - it is not appropriate for the purposes of Appropriate Assessment (AA), at the screening stage, to take account of the measures intended to avoid or reduce the harmful effects of a plan or project.
- European Court of Justice ruling 19<sup>th</sup> April 2018 in respect of Case C-164/17, Compensation vs Mitigation, Grace & Sweetman Vs ABP.
- High Court Ruling 8<sup>th</sup> February 2019 by Justice Barniville in respect of Kelly -v- An Bord Pleanála & anor. The Court concludes “*as a matter of fact and law, that SUDS are not mitigation measures which a competent authority is precluded from considering at the stage 1 screening stage*”. The Irish High Court ([2019] IEHC 84)
- Heather Hill Management Company CLG v An Bord Pleanála (Burkeway Homes Limited as Notice Party) [2019] IEHC 450. Mr. Justice Garrett Simons granted an order of certiorari setting aside the decision of the BoÁrd to grant permission for a residential development of 197 units at Bearna Co. Galway, on the basis that it was a material contravention of the Galway County Development Plan (the CDP), it failed to carry out a 'justification test' as required and failed to carry out proper Appropriate Assessment screening.
- European Commission. *Managing Natura 2000 sites: The provisions of Article 6 of the ‘Habitats’ Directive 92/43/EEC*, (21-11-18) C (2018) 7261 Final. Commission Notice Brussels.

### 1.2.2 Information Consulted for this Report

Consideration of potential impacts on Natura 2000 sites as a result of the proposed quarry development have been informed by desktop review and also on the findings of a range of ecological surveys carried out at and adjacent to the proposed development site to inform the ecology assessment for the EIAR, as follows:

#### Desktop review sources:

- Previous planning documents relating to the quarry (Planning refs. 20082323; P2016/0261, PL26.246680; P17/1532; ABP 301615-18)
- Correspondence in relation to the current Waste License application to the EPA (W0305-01)
- Environmental Impact Assessment, particularly Ecology Chapter 6, Chapter 7, Lands Soils & Geology and Chapter 8, Hydrology and Hydrogeology from P17/1532
- Ecological survey prepared as Condition of Permission (Goodwillie, 2009)
- Data and mapping from the National Parks and Wildlife Service, NPWS, website [www.npws.ie](http://www.npws.ie)
- Data and mapping from the National Biodiversity Data Centre website ([www.biodiversityireland.ie](http://www.biodiversityireland.ie))
- Data and mapping from the Environmental Protection Agency, EPA, website [www.epa.ie](http://www.epa.ie)
- Published literature and reports e.g. EPA (2009), Maitland & Hatton-Ellis (2000).

#### Baseline ecological surveys:

- General site walkover surveys
- Detailed habitat and botanical survey (Sep 2015). Habitat codes in text are from Fossitt (2000)

- General bird survey transects (Sep, Oct, Dec 2015)
- Mammal camera surveys (Aug - Dec 2015, 6 separate locations)
- Passive bat detector study (10 nights)
- Lands, Soils & Geology by AGEC Ltd. (Chapter 7 of the EIAR)
- Hydrology and hydrogeology surveys by Aqua GeoServices Ltd. (Chapter 8 of EIAR for the 2017 application, P17/1532; ABP 301615-18)

*For inspection purposes only.  
Consent of copyright owner required for any other use.*

## 2 Stage 1: Screening for Appropriate Assessment

### 2.1 Brief Description of the Site & Project – including Planning History

#### 2.1.1 Site Location

Sean and Michael Kelly are seeking a waste licence from the EPA for the extension of quarrying works at Ballinrooan Quarry, Screen, Co. Wexford located in the rural townland of Ballinrooan c. 2 km north of Curracloe, and c. 2.3 km east of the Wexford coastline, as shown in Figure A6.1.

The existing sand and gravel pit quarry is operated to extract sand and gravel (over an area of c. 5.52 ha), has a permitted output rate of 125,000 tonnes per annum to a maximum depth of 60 m OD and is operating under Planning Ref. No. 2008/2323. The quarry extension which received planning permission from Wexford County Council and upon appeal from ABP (P17/1532; ABP 301615-18) comprises an area of c. 8.45ha to the west and south-west of the existing site (Figure A6.3) and seeks to extract sand and gravel to a maximum depth of 38 m OD with a proposed output rate of 100,000 per annum (P17/1532; Chapter 7 Lands Soils & Geology, EIAR). The quarry is accessed through a private agricultural road.

A planning application was lodged on in September 2008 for retention, continued operation and extension of the existing sand and gravel pit on a site of c. 5.5 ha, to provide a final extracted area of 3.45 ha and to a depth of 60 m above OD. Retention was sought for an existing mobile sand and gravel screening plant, loading areas and vehicle parking areas. The development included a wheelwash, areas of stockpiling, landscaping, other site development works above and below ground and restoration of the final pit void. Permission was granted in July 2009 subject to conditions including an operational period of a maximum of seven years from the date of permission with an additional period of six months to implement a closure plan. As part of the planning conditions the site owner entered into an agreement to contain an undertaking to dedicate and maintain an area on the applicant's landholding as a 'compensation area' as part of a long-term management and restoration plan for the quarry. The surrounding area is relatively elevated (70-100m OD) with extensive views in all directions. The landscape is characteristic of the 'kettle and kame' glacial landscape. Runoff from storm water is rarely observed at the existing quarry and agricultural fields given the drainage afforded by the sand and gravel base. Rainfall infiltrates immediately and during extreme rainfall events there may be small ponds formed which soon after drain away.

In 2016 an application was lodged seeking permission for the continuation and restoration of the existing operational sand and gravel quarry of 5.5 hectares and extension area of c. 9.7 hectares (P2016/0261 and PL26.246680). The eastern portion of the application site included the existing permitted quarry and the western portion was dominated by agricultural grassland. Permission was ultimately refused with An Bord Pleanála refusing permission, with the size of the proposed extension and the elevation of the quarry cited as the principal issues. The 2017 permitted application covered a considerably smaller footprint than applied for in 2016 (8.45 ha). The extraction plan (over an area of c. 5.52 ha) involves the stripping of the topsoil (c. 0.3m) and upper 3m of sandy soil which will be stockpiled separately to be used in progressive site restoration. The site boundary overlaps the current area of extraction and includes lands to the west and southwest of the existing quarry (Figure A6.3). The 2017 permitted application site also excludes the lands to the north, which are more elevated, and which were included in the 2016 application.

The lands are well drained agricultural grassland with no ponds or watercourses of any note. The restoration plan for the extension area involve filling the quarry void with imported inert soil from pre-approved external sites (greenfield). No peats, topsoil, non-hazardous wastes or contaminated soils will be accepted as suitable infill material. The lifetime of the quarry is estimated at 20 years, with extraction occurring from years 1-14 and infilling being carried out as part of a progressive restoration plan from years 4-20. It is proposed that extraction will commence in the northeast, proceeding southwards. It is proposed that the quarry access road will be progressively realigned as the extraction and infilling/restoration process develops. Extractive depth will be kept a minimum of 5 m above the groundwater level. In terms of site services, there are no built structures proposed as part of the new application. There is no water supply or foul water drainage serving the site. Persons employed on site use the facilities available at the Applicants family farm-yard located to the west of the site (c. 750 m west) and will be maintained for the proposed development. Once infilling is completed in an area the stockpiles of sandy soil and topsoil will be used to reinstate the top 3.3m of overburden. The existing seedbank will naturally revegetate the restored areas to grassland habitat.

The development site is located within the River Sow sub-catchment (Hydrometric Area 12 – Slaney & Wexford Harbour). There are no EPA-registered watercourses within the development site. Runoff from storm water is rarely observed at the existing quarry and proposed extension site given the drainage afforded by the sand and gravel base. Topographical surveys indicated that groundwater from the proposed extension site drains south-west towards the source of Glenbough stream, c. 0.3 km south-west (see Chapter 8 Hydrogeology & Hydrology, EIAR). Glenbough stream flows into Sinnottsmill River, which in turn continues to flow into the River Sow before discharging into the north-east channel of Slaney River Estuary at Wexford Harbour. This estuary is part of the overlapping Natura 2000 sites; Slaney River Valley SAC and Wexford Harbour & Slobbs SPA. Under the Water Framework Directive, the Risk Score of the River Sow and its tributaries (Glenbough stream and Sinnottsmill River) are classified as '*at risk of not achieving good status*' with a WFD status that is currently unassigned<sup>2</sup>.

### 2.1.2 Site Overview

Previous ecological reports prepared as part of Planning Compliance (Goodwillie, 2009) and related to the planning application (P17/1532; Chapter 6 Ecology, EIAR) have been considered in order to gain an overview of the study site as well as to note ecological points of interest such as the presence of habitats/species that are protected or are qualifying interests of the Natura 2000 sites relevant here (as outlined in Section 2.2 below) and invasive plant species.

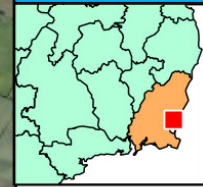
Much of the existing quarry site area can be classified as active quarries and mines (ED4). The open active sand pit is associated with piles of spoil and finer sand that occur along the quarry fringes. Significant re-establishment of vegetation has occurred on the quarry fringes and areas of piled spoil which now support areas of recolonising bare ground (ED3) together with a significant area of reseeded Improved Agricultural Grassland (GA1) to the north of the existing quarry. An area of less improved acid grassland (GS3) occurs to the south of the quarry developed on previously graded spoil which extends into the adjacent SAC area – as part of the agreed reinstatement process. Some scrub (WS1) is associated with field margins and slopes. The main portion of the extension area is primarily reseeded pasture (GA1) separated by hedgerows

<sup>2</sup> <https://www.catchments.ie/>

(WL1). Principal land-uses in the extension site is cattle grazing and the lands were also under tillage in recent decades. Some areas of semi-natural habitat occur within the proposed development site and these are associated acid grassland, field margins, recolonizing bare soil, scrub and hedgerows. The lands are well drained agricultural grassland with no ponds or watercourses of any note.

A rare plant survey was carried out within the vicinity of the existing quarry and the surrounding area, including a compensation area as conditioned in the planning permission for operation of the quarry (Goodwillie, 2009). One species of note was recorded on stored topsoil at the site: Annual Knawel, *Scleranthus annuus*, which is listed on the Flora Protection Order (FPO 2015). The sighting was of a single plant but it was concluded that the species was likely to persist in the seedbank in the topsoil material stored for future site restoration purposes. No other protected species is known to occur within the application area. No species of flora protected under the FPO was recorded from within the application site during any of the ecological walkovers in 2015. No Annex I habitats were present within the application site. No invasive plant species were recorded within or immediately adjacent to the proposed site boundary (Chapter 6 Ecology, EIA).

For inspection purposes only.  
Consent of copyright owner required for any other use.



**Client Name:**  
MK Silversands

**Project Title:**  
Screening Assessment Report - Ballinrooan

**Figure Name:**  
Site Location Map

A6.1

**Date:**  
13/11/2017

**Rev:** A

**Drawn by:** GF



**Dr. Gavin Fennessy**  
 Phone: 087-6163589  
 Ballyhigh, Effin  
 Kilmallock, Co. Limerick  
[www.ecologyireland.ie](http://www.ecologyireland.ie)



## 2.2 Description of the Natura 2000 Sites

The extension site at Ballinrooaun Quarry is not located within any Natura 2000 site (Figure A6.2). However, the southern boundary of the existing quarry and the southwestern portion of the extension area lie directly adjacent to Screen Hills SAC. A further 7 Natura 2000 sites are located within 15 km of the proposed development (Tables A6.1 and Figure A6.2).

**Table A6.1. Designated Natura 2000 sites within wider hinterland of Ballinrooaun Quarry, Co. Wexford.**

Designated Site	Site Code	Distance (km)
Screen Hills SAC	000708	0 (Directly adjacent)
The Raven SPA	004019	2.2
Wexford Harbour & Slobs SPA	004076	2.3
Raven Point Nature Reserve SAC	000710	3.7
Slaney River Valley SAC	000781	4.9
Long Bank SAC	002161	9.1
Kilmuckridge-Tinnaberna Sandhills SAC	001741	10.1
Blackwater Bank SAC	002953	10.3

As the development site is not within any designated conservation sites, nor does it require any resources from these sites; any direct habitat loss at the conservation sites in question can be ruled out. Indirect habitat loss or deterioration of designated sites within the surrounding area could occur from the effects of (i) run-off or discharge into the aquatic environment through impacts such as increased siltation and/or contamination or through the introduction of sand/dust or invasive plant species. This requires a hydrological connection or close proximity between the site and the designated site in question through watercourses and/or drainage ditches.

The development site is located within the River Sow sub-catchment (Hydrometric Area 12 – Slaney & Wexford Harbour). As outlined in Section 2.1, there is a hydrological link through potential groundwater drainage from the proposed site to the source of the Glenbough Stream which eventually discharges into the northeast channel of the River Slaney Estuary at Wexford Harbour and associated Slaney River Valley SAC and Wexford Harbour & Slobs SPA. Wexford Harbour & Slobs SPA is designated for internationally important populations of a wide range of bird species of conservation concern (Table A6.2). Slaney River Valley SAC is designated for a diverse range of qualifying interests including Annex I habitats and Annex II aquatic species sensitive to water quality impacts (Table A6.2). Therefore, the potential for indirect hydrological impacts on the qualifying habitats and species of Slaney River Valley SAC and Wexford Harbour & Slobs SPA via quarrying activity are further considered in Section 3.1 of this report.

Like Wexford Harbour & Slobs SPA to which it is adjacent, The Raven SPA is designated for protected mobile waterbird species (Table A6.2). The proposed development site and The Raven SPA are not hydrologically linked, and there is no possibility of water quality impacts on wetlands there as a result of the proposed quarrying activity. Therefore, a hydrological connection is ruled out as a potential impact on this Natura 2000. Another potential impact on the Raven SPA is the disturbance and/or displacement of the qualifying avian species of this Natura 2000 site. Disturbance and/or displacement of qualifying species could



potentially be caused through noise or visual cues, arising from the development. However, this requires proposed development site to be relatively close to the Natura 2000 site in question. In this case, due to the proximity of the proposed development site to The Raven SPA (c. 2.2km), the potential disturbance/displacement impacts are further considered in Section 3.1 of this report.

The quarry extension development site lies north of and directly adjacent to parts of Screen Hills SAC (Figure A6.2) which is designated for important examples of two habitats listed on Annex I of the E.U. Habitats Directive (oligotrophic lakes and dry heath). The ponds and lakes within this Natura 2000 site have no known hydrological connection with the development site as follows; A survey of ten ponds/lakes near the proposed site (P17/1532; Chapter 8 Hydrology and Hydrogeology, EIAR) concluded that all except Glenbough Lake were shallow (<1.5 m) ponds/lakelets fed by rainfall and not interacting with groundwater. Therefore, there is no potential for surface water run-off or groundwater drainage from the proposed site to these lakes since the proposed quarry floor will be at least 5 m above the groundwater table, and below the depth of these shallow lakes, preventing any flow of surface-water towards them (P17/1532; Chapter 8 Hydrogeology & Hydrology, EIAR). There is also no potential disturbance/displacement impacts on Screen Hills SAC through noise or visual cues produced by the development as this Natura 2000 site is designated for Annex I habitats only, no highly mobile species that could undergo ex-situ impacts are listed as qualifying interests of this Natura 2000 site. However, given the proximity of Screen Hills SAC to the quarry extension development site, potential impacts will be considered in Section 3.1 of this report.

The Long Bank SAC and Blackwater Bank SAC comprises offshore sandbanks located >7 km off the Wexford coastline, and are designated for submerged sandbanks, an Annex I Habitat of the E.U. Habitats Directive. Kilmuckridge-Tinnaberna Sandhills SAC is a narrow coastal beach site which is designated for its Annex I dune habitats (marram/white dunes and fixed/grey dunes). There is no recognisable pathway by which any works at the quarry extension site could impact on these three Natura 2000 sites. The development does not have the potential to impact (either directly or indirectly) on Long Bank SAC, Blackwater Bank SAC, or Kilmuckridge-Tinnaberna Sandhills SAC or their qualifying interests, as there are no hydrological links between these designated sites and the quarrying site, and these Natura 2000 sites are located over 9 km from the quarry extension. These sites are therefore not considered further in this screening report. The Raven Point Nature Reserve SAC, located 3.7 km distant, is a large sand dune system designated for a suite of coastal habitats which are listed on Annex I of the E.U. Habitats. There is no hydrological link between the quarry extension site and this SAC, ruling out potential impacts on its qualifying habitats. Therefore, Raven Point Nature Reserve SAC is also not considered further in this screening assessment.

In summary, the hydrological link of the quarry extension development with Slaney River Valley SAC and Wexford Harbour & Slobs SPA, and the proximity of the site to both Screen Hills SAC and The Raven SPA puts these Natura 2000 sites within the project Zone of Influence - and are considered further in Section 3 of this report.

As no potential direct/indirect impacts from the quarry extension development on The Long Bank SAC, Blackwater Bank SAC, Kilmuckridge-Tinnaberna Sandhills SAC, and Raven Point Nature Reserve SAC have been identified, these Natura 2000 sites have been screen out and are not consider further in this report.

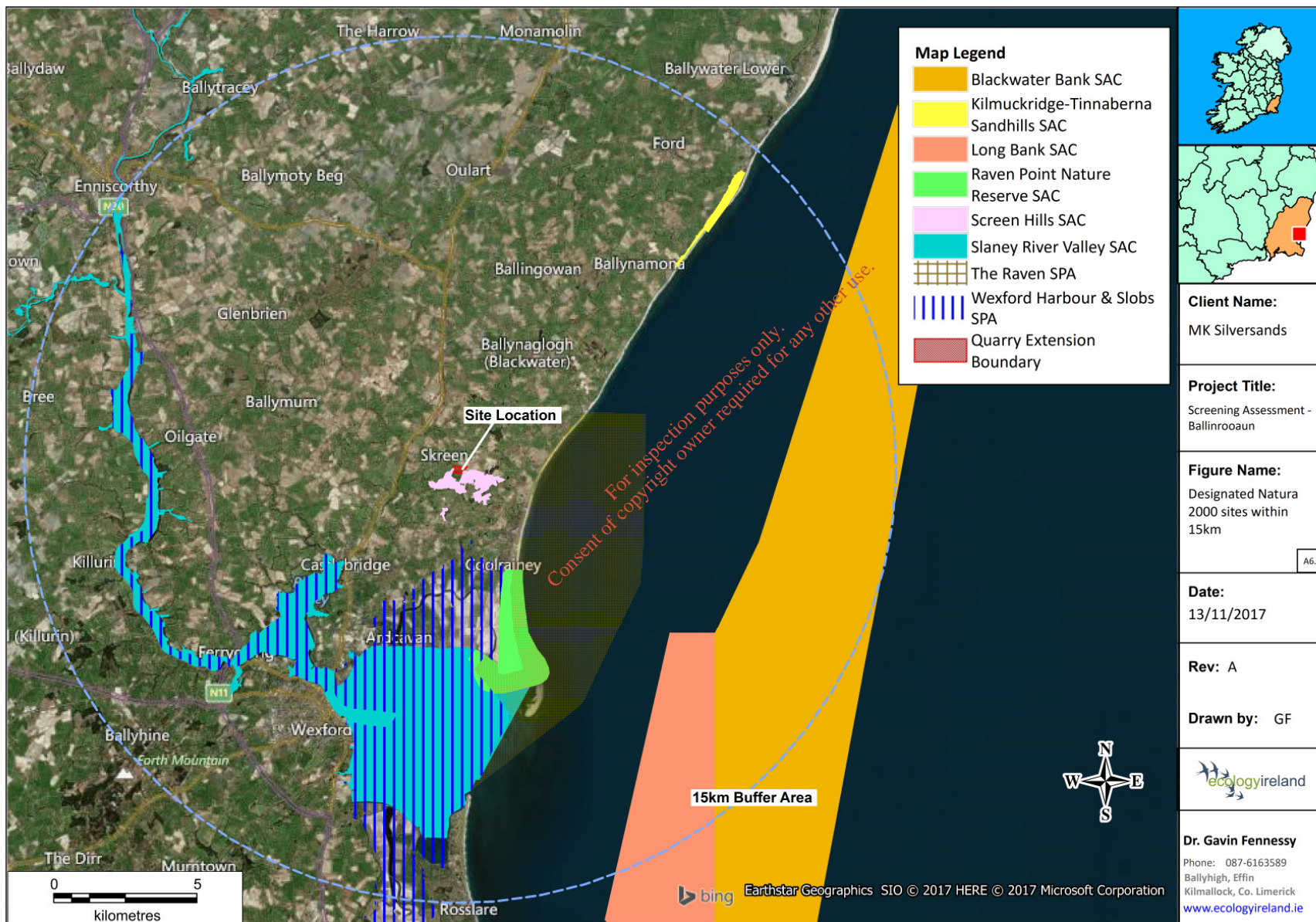


Table A6.2 Natura 2000 Site Summary

Site Name & Code	Key Conservation Reasons and Qualifying Interests	Minimum Distance to Site (km)
Screen Hills SAC 000708	<p>The Screen Hills are located in the south-east of Ireland, just north of the Wexford Slob. The site is characterised by a type of glacial landscape known as 'kettle and kame', a term which refers to kettlehole lakes found in hollows between small hills. The lakes, which are mostly small, mark the positions of former ice blocks in an acidic, sandy moraine. The Screen Hills contain important examples of two habitats listed on Annex I of the E.U. Habitats Directive, with the heath area being particularly unusual. The presence of several Red Data Book plant species adds further importance to this site (NPWS, 2018).</p> <p>The site is selected for the following habitats listed on Annex I of the E.U. Habitats Directive:</p> <ul style="list-style-type: none"> <li>• [3110] Oligotrophic Waters containing very few minerals</li> <li>• [4030] Dry Heath</li> </ul> <p>The lakes in the site are of two broad types. The first type are low-lying and in contact with groundwater, and these are influenced by what is occurring over a wide area. The second type are suspended at a height above the regional water table, and are influenced by the area immediately surrounding them. These lakes can usually be considered oligotrophic (low in nutrients), although nutrient input from the adjacent land may change this.</p> <p>Dry heath at the site is extensive and species-rich. The heath vegetation at the site differs from most heaths elsewhere in the virtual absence of Heather, and in the presence of a diverse range of annual species. Substantial populations of the following Red Data Book species have been found at this very important and complex site, and in other localities on and adjoining the moraine: Slender Cudweed (<i>Logfia minima</i>), Wood Cudweed (<i>Omalotheca sylvatica</i>), Hairy Bird's-foot-trefoil (<i>Lotus subbiflorus</i>) and Bird's-foot (<i>Ornithopus perpusillus</i>) Annual Knawel (<i>Scleranthus annuus</i>) and Musk Thistle (<i>Carduus nutans</i>). Four of the species mentioned above are legally protected under the Flora (Protection) Order, 2015 – Slender Cudweed, Wood Cudweed, Hairy Bird's-foot-trefoil, and Annual Knawel.</p>	0 km (Directly adjacent)

Site Name & Code	Key Conservation Reasons and Qualifying Interests	Minimum Distance to Site (km)
The Raven SPA 004019	<p>The Raven SPA is situated on the north side of Wexford Harbour, incorporating the dynamic sand dune system of Raven Point and the coastal strip running north to Blackwater Head. The Raven sand dune system comprises a suite of coastal habitats listed on Annex I of the EU Habitats Directive (NPWS, 2011b).</p> <p>This site is of international ornithological importance as it provides crucial roosting habitat for the Wexford Harbour flock of Greenland White-fronted Geese, forming the principal night roost for this species in Ireland. The site also provides habitat for a range of other species, including six which have populations of <i>National Importance</i>; the Raven is probably the most regular site in the country for Slavonian Grebe. Of particular significance is that six of the wintering species are listed on <i>Annex I of the E.U. Birds Directive</i>, i.e. Red-throated Diver, Great Northern Diver, Slavonian Grebe, Golden Plover, Bar-tailed Godwit and Greenland White-fronted Goose. Little Tern, a species breeding in the site, is also listed on Annex I of this directive. Owing to the recognised importance of the area, Raven Point is a <i>statutory Nature Reserve and a Ramsar site</i>.</p> <p>The site is designated for the following bird species listed on Annex I of the E.U. Birds Directive, and also wetlands:</p> <ul style="list-style-type: none"> <li>• [A001] Red-throated Diver (<i>Gavia stellata</i>), wintering</li> <li>• [A017] Cormorant (<i>Phalacrocorax carbo</i>), wintering</li> <li>• [A065] Common Scoter (<i>Melanitta nigra</i>), wintering</li> <li>• [A141] Grey Plover (<i>Pluvialis squatarola</i>), wintering</li> <li>• [A144] Sanderling (<i>Calidris alba</i>), wintering</li> <li>• [A395] Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>), wintering</li> <li>• [A999] Wetlands and Waterbirds</li> </ul> <p>This SPA is adjacent to Wexford Harbour &amp; Slobs SPA (004076). These SPAs partially overlap with Raven Point Nature Reserve SAC (000710) and Slaney River Valley SAC (000781).</p>	2.2 km

Site Name & Code	Key Conservation Reasons and Qualifying Interests	Minimum Distance to Site (km)
<p>Wexford Harbour &amp; Slobs SPA 004076</p>	<p>Wexford Harbour is the lowermost part of the estuary of the River Slaney, a major river that drains much of the south-east region. The site is divided between the natural estuarine habitats of Wexford Harbour, the reclaimed polders known as the North and South 'Slobs', and the tidal section of the River Slaney. The seaward boundary extends from the Rosslare peninsula in the south to the area just west of The Raven Point in the north. Wexford Harbour &amp; Slobs SPA is one of the top three sites in the country for numbers and diversity of wintering birds, and one of the most important ornithological sites in the country.</p> <p>It is of <i>World Importance</i> for Greenland White-fronted Goose. The geese feed almost entirely within the Slobs and roost at The Raven SPA (004019 above). It supports <i>Internationally Important</i> populations of a further four species (Mute Swan, Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit). In addition, it has 25 species of wintering waterbirds with populations of <i>National Importance</i>. Also of significance is that several of the species which occur regularly are listed on Annex I of the E.U. Birds Directive, i.e. Little Egret, Whooper Swan, Bewick's Swan, Greenland White-fronted Goose, Hen Harrier, Golden Plover, Bar-tailed Godwit, Ruff, Wood Sandpiper, Little Tern and Short-eared Owl.</p> <p>The site regularly supports in excess of 20,000 waterbirds during winter. Its wetlands include extensive areas of intertidal flats exposed at low tide which are fringed with saltmarsh in places, especially in sheltered areas such as Ferrycarrig, Castlebridge and Hopeland. At Castlebridge, saltmarsh grades into brackish marsh which is quite extensive and diverse. Other wetland habitats include lagoons, dune slacks and reedswamp (NPWS, 2011b).</p> <p>The site is designated for the following bird species listed on Annex I of the E.U. Birds Directive, and also wetlands (numbers in brackets are Natura 2000 codes):</p> <ul style="list-style-type: none"> <li>• [A004] Little Grebe (<i>Tachybaptus ruficollis</i>)</li> <li>• [A005] Great Crested Grebe (<i>Podiceps cristatus</i>)</li> <li>• [A017] Cormorant (<i>Phalacrocorax carbo</i>)</li> </ul>	<p>2.3</p>

Site Name & Code	Key Conservation Reasons and Qualifying Interests	Minimum Distance to Site (km)
	<ul style="list-style-type: none"> <li>• [A028] Grey Heron (<i>Ardea cinerea</i>)</li> <li>• [A037] Bewick's Swan (<i>Cygnus columbianus bewickii</i>)</li> <li>• [A038] Whooper Swan (<i>Cygnus cygnus</i>)</li> <li>• [A046] Light-bellied Brent Goose (<i>Branta bernicla hrota</i>)</li> <li>• [A048] Shelduck (<i>Tadorna tadorna</i>)</li> <li>• [A050] Wigeon (<i>Anas penelope</i>)</li> <li>• [A052] Teal (<i>Anas crecca</i>)</li> <li>• [A053] Mallard (<i>Anas platyrhynchos</i>)</li> <li>• [A054] Pintail (<i>Anas acuta</i>)</li> <li>• [A062] Scaup (<i>Aythya marila</i>)</li> <li>• [A067] Goldeneye (<i>Bucephala clangula</i>)</li> <li>• [A069] Red-breasted Merganser (<i>Mergus serrator</i>)</li> <li>• [A082] Hen Harrier (<i>Circus cyaneus</i>)</li> <li>• [A125] Coot (<i>Fulica atra</i>)</li> <li>• [A130] Oystercatcher (<i>Haematopus ostralegus</i>)</li> <li>• [A140] Golden Plover (<i>Pluvialis apricaria</i>)</li> <li>• [A141] Grey Plover (<i>Pluvialis squatarola</i>)</li> <li>• [A142] Lapwing (<i>Vanellus vanellus</i>)</li> <li>• [A143] Knot (<i>Calidris canutus</i>)</li> <li>• [A144] Sanderling (<i>Calidris alba</i>)</li> <li>• [A149] Dunlin (<i>Calidris alpina</i>)</li> <li>• [A156] Black-tailed Godwit (<i>Limosa limosa</i>)</li> <li>• [A157] Bar-tailed Godwit (<i>Limosa lapponica</i>)</li> <li>• [A160] Curlew (<i>Numenius arquata</i>)</li> <li>• [A162] Redshank (<i>Tringa totanus</i>)</li> </ul>	

Site Name & Code	Key Conservation Reasons and Qualifying Interests	Minimum Distance to Site (km)
	<ul style="list-style-type: none"> <li>• [A179] Black-headed Gull (<i>Chroicocephalus ridibundus</i>)</li> <li>• [A183] Lesser Black-backed Gull (<i>Larus fuscus</i>)</li> <li>• [A195] Little Tern (<i>Sterna albifrons</i>)</li> <li>• [A395] Greenland White-fronted Goose (<i>Anser albifrons flavirostris</i>)</li> <li>• [A999] Wetland and Waterbirds</li> </ul>	
<p>Slaney River Valley SAC 00781</p>	<p>This site comprises the freshwater stretches of the River Slaney as far as the Wicklow Mountains; a number of tributaries, the larger of which include the Bann, Boro, Glasha, Clody, Derry, Derreen, Douglas and Carrigower Rivers; the estuary at Ferrycarrig, and Wexford Harbour. The site flows through the Counties of Wicklow, Wexford and Carlow. The river is up to 100 m wide in places and is tidal at the southern end from Edermine Bridge below Enniscorthy. The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, and habitats listed on Annex I of this Directive, as well as important numbers of wintering wildfowl including some species listed on Annex I of the E.U. Birds Directive. The presence of wet and broadleaved woodlands increases the overall habitat diversity and the occurrence of a number of Red Data Book plant and animal species adds further importance to the site. Two rare aquatic plant species which are legally protected under the Flora (Protection) Order, 2015, have been recorded in this site: Short-leaved Water-starwort (<i>Callitriche truncata</i>), a very rare, small aquatic herb found nowhere else in Ireland, and Opposite-leaved Pondweed (<i>Groenlandia densa</i>). At the southern end of the site, the Red Data Book species Yellow Archangel (<i>Lamium galeobdolon</i>), Blue Fleabane (<i>Erigeron acer</i>), Basil Thyme (<i>Acinos arvensis</i>), and Slender Cudweed (<i>Logfia minima</i>) occur.</p>	<p>4.9</p>

Site Name & Code	Key Conservation Reasons and Qualifying Interests	Minimum Distance to Site (km)
	<p>Basil Thyme and Slender Cudweed are protected under the Flora (Protection) Order, 2015. The site is of high ornithological importance also, overlapping as it does with the Wexford Harbour &amp; Slobbs SPA (NPWS, 2011a).</p> <p>The site is selected for the following habitats and/or species listed on Annex I/II of the E.U. Habitats Directive (* = priority; numbers in brackets are Natura 2000 codes):</p> <p><b>Annex I Habitats:</b></p> <ul style="list-style-type: none"> <li>• [1130] Estuaries</li> <li>• [1140] Tidal Mudflats and Sandflats</li> <li>• [3260] Floating River Vegetation</li> <li>• [91A0] Old Oak Woodlands</li> <li>• [91E0] Alluvial Forests*</li> </ul> <p><b>Annex II Species:</b></p> <ul style="list-style-type: none"> <li>• [1029] Freshwater Pearl Mussel (<i>Margaritifera margaritifera</i>)</li> <li>• [1095] Sea Lamprey (<i>Petromyzon marinus</i>)</li> <li>• [1096] Brook Lamprey (<i>Lampetra planeri</i>)</li> <li>• [1099] River Lamprey (<i>Lampetra fluviatilis</i>)</li> <li>• [1103] Twait Shad (<i>Alosa fallax</i>)</li> <li>• [1106] Atlantic Salmon (<i>Salmo salar</i>)</li> <li>• [1355] Otter (<i>Lutra lutra</i>)</li> <li>• [1365] Common (Harbour) Seal (<i>Phoca vitulina</i>)</li> </ul>	

Consent of copyright owner required for any other use.  
For inspection purposes only.



### 3 Stage 1: Assessment Criteria

#### 3.1 Elements of the Project Likely to Impact on the Natura 2000 Sites

The quarry extension development is not situated within any Natura 2000 site. There are no potential direct impacts on any Natura 2000 sites as a result of the proposed continuation and extension of the sand and gravel quarry at Ballinrooan. A total of 8 Natura 2000 sites occur within 15 km of the proposed site (Table A6.1). However, only four of these sites have been identified as having the potential to be impacted (indirectly) by the proposed quarry development and will be assessed in this screening report. These are:

- Screen Hills SAC (Site Code 000708)
- The Raven SPA (004019)
- Wexford Harbour & Slob SPA (004076)
- Slaney River Valley SAC (000781)

As detailed in Section 2.1, the proposed development is of an existing sand and gravel pit quarry operation, with proposed extension into an area of what is currently agricultural grassland. The following elements of the proposed quarry development could potentially give rise to adverse impacts on the Natura 2000 sites listed above;

- Extending the quarry and lowering the quarry floor have the potential to impact on surface water and groundwater quality draining to the Natura 2000 sites as a result of contaminated surface water run-off or contamination of groundwater during the proposed activities. Potential pollutants include fuel, oils, hydraulic fluid, wheel wash, or silt-laden run-off from the proposed site.
- Lowering of the quarry floor has the potential to affect the quantity of groundwater supplying the oligotrophic lakes within Screen Hills SAC.
- The import of infill material could inadvertently introduce new species, including 'invasives' to the site.
- Wind-blown dust or sand from quarrying operations has the potential to have impacts on Screen Hills SAC via deposition on land or water features.

##### 3.1.1 Direct Habitat Loss

The proposed development site is not located within the boundaries of any Natura 2000 site, does not include any habitats relating to the conservation objectives of the designated sites in question, and will not require any resources from these sites, thereby ruling out any direct habitat loss from these conservation sites. The topsoil (and seedbank) will be stored and used to restore the quarry.

##### 3.1.2 Indirect Habitat Loss or Deterioration

Indirect habitat loss or deterioration of designated sites could potentially occur from the effects of run-off or discharge into the aquatic environment through impacts such as increased siltation, nutrient release and/or contamination. This requires connectivity between the development site and the designated site in question through watercourses and/or drainage ditches.

As detailed in Section 2.2, there is a hydrological link to Wexford Harbour & Slob SPA and Slaney River Valley SAC via the flow of groundwater from the proposed site towards the source of the Glenbough Stream located c. 0.3 km south west of the proposed quarry. Slaney River Valley SAC is designated for five Annex I habitat types (Table A6.2). Two of these occur upstream from the discharge of the River Sow into the lower estuary of the Slaney River; 'old oak woodlands (91A0)' and 'alluvial forests (91E0)'. There is no recognisable pathway by which these habitats can be impacted by the proposed development. As the River Sow does not merge with the main freshwater channel of the River Slaney which discharges >4 km away from the mouth of the River Sow, the hydrological link from the proposed quarry only has the potential to impact on the estuarine waters here, and not on the freshwater upper regions of the River Slaney. This means that the Annex II aquatic species (lamprey, freshwater pearl mussel, *etc.*) listed as qualifying interest of Slaney River Valley SAC (Table A6.2) and are sensitive to water quality impacts will not be impacted by the proposed development. However, the remaining three habitats, 'estuaries (1130)', 'tidal mudflats and sandflats (1140)' and 'floating river vegetation (3260)', are vulnerable to the effects of deterioration in water quality. Likewise, the wetlands supporting the qualifying avian species of Wexford Harbour & Slob SPA are vulnerable to water quality impacts also.

Quarry operations have the potential to impact on the quality of groundwater draining to the Natura 2000 sites. Potential pollutants include fuel, oils, hydraulic fluid or wheel wash from the operation of machinery, or silt-laden run-off from the proposed site as a result of quarrying (including restoration) activity.

The restoration plan for the proposed extension area involves filling the quarry void with imported inert soil and stone from pre-approved external greenfield sites. The importation of inert soil and stone could contaminate groundwater or introduce invasive plant species. Given the hydrological connection between the proposed development and Slaney River Valley SAC and Wexford Harbour & Slob SPA there is the potential for significant negative effects on the qualifying interests of the Natura 2000 sites, through vectors such as the groundwater drainage of pollutant sources to the source of the Glenbough Stream, in the absence of adequate mitigation during the continuation, retention and extension of quarrying at the development site. Under the Water Framework Directive, the Risk Score of the River Sow and its tributaries (Glenbough stream and Sinnottsmill River) are classified as '*at risk of not achieving good status*' with a WFD status that is currently unassigned.

Pollutants could potentially contaminate waterbodies (ponds and lakes) fed by groundwater via the lowering of the quarry floor to the level of the water table. While there are no ponds or lakes inside the boundary of the proposed site, there are several within the adjoining Screen Hills SAC. A survey of ten ponds/lakes near the quarry site (P17/1532; Chapter 8 Hydrology and Hydrogeology, EIAR) concluded that all except Glenbough Lake were shallow (<1.5 m) ponds/lakelets fed by rainfall and not interacting with groundwater. There is thus no potential for surface water run-off or groundwater drainage from the proposed site to these lakes (P17/1532; Chapter 8 Hydrogeology & Hydrology, EIAR). Glenbough Lake, an Annex I Habitat (oligotrophic lakes), is located c. 0.49 km south of the proposed site within the Screen Hills SAC. It is deeper than the other ponds/lakelets near the proposed quarry and is the only one potentially fed by groundwater. The groundwater flow direction is oriented in a south-westward direction, i.e. away from Glenbough Lake. There is thus no pathway and no

potential for an indirect water quality impact on Glenbough Lake as a result of the quarry development and restoration (P17/1532; Chapter 8 Hydrogeology & Hydrology, EIAR).

There is no requirement for pumping or storage of groundwater on site in order to carry out excavations. Furthermore, no water will be used in the processing of material at the quarry extension. The drainage of the general area is mainly controlled by percolation into the ground. Except for the Glenbough Stream, there are no other rivers nearby, which is a good overall indicator of the permeability of the soil/subsoil. Rainfall and any temporary surface water is predicted to percolate through the highly permeable and well-drained quarry sediments to recharge groundwater. There is thus no predicted change to the quantity of groundwater or recharge pattern in the Screen Hills SAC area as a result of the planned activities (P17/1532; Chapter 8 Hydrogeology & Hydrology, EIAR).

Wind-blown dust/sand deposition could have a potential impact on the qualifying interests of Natura 2000 sites. Deposition of dust/sand into water features, such as oligotrophic lakes, has the potential to cause siltation impacts. However, a limited amount of wind-blown sand does not have the potential to damage the dry heath habitat, as it can lighten the soil and improve growing conditions for some characteristic plant species. Given the proximity between the quarry extension development and Screen Hills SAC, there is the potential for significant negative effects on the qualifying interests, particularly on the listed oligotrophic ponds and lakes (See Table A6.2), in the absence of best practice measures and adequate site-specific mitigation during the continuation, retention and extension of quarrying at the development site.

The spread of non-native invasive plant species to habitats within Natura 2000 sites is a potential threat to their conservation status. Such species can be spread through the movement of contaminated soils, or through hydrological links between sites. As outlined in section 2.1, no invasive plant species have been recorded at the quarry site. However, invasive species may be accidentally introduced to a location via contaminated vehicles and equipment, in particular tracked vehicles, which were previously used in locations that contained invasive species. The restoration plan for the extension area involves filling the quarry void with imported inert soil and stone from pre-approved external sites. The importation of inert material could contaminate groundwater or introduce invasive plant species. Given the proximity of Screen Hills SAC to the development site and the hydrological connection of the development site to Slaney River Valley SAC and Wexford Harbour & Slobbs SPA, there is the potential for significant negative effects on the qualifying interests, through vectors such as the spread of invasive plant species via contaminated vehicles/imported soil, which in the absence of adequate mitigation during the continuation, retention and extension of quarrying at the development site.

Given that in the absence of adequate mitigation there is some likelihood of significant effects arising from run-off of contaminants from the quarry extension development site, the potential for indirect habitat loss or deterioration cannot be discounted.

### 3.1.3 Disturbance / Displacement of Fauna

Disturbance and/or displacement of qualifying species of Natura 2000 sites could potentially be caused through noise or visual cues. However, this requires an impact-receptor pathway, where the

sites would need to be relatively close to each other in relation to noise and/or visual cues. There is no requirement for the installation of artificial lighting on site. Furthermore, there is no requirement for blasting and crushing of rock due to the softer sand and gravel substrate of the quarry. There is no potential for disturbance/displacement of fauna species occurring within local Natura 2000 sites as the quarry site is at least 2.2 km from the nearest relevant site (Table A6.1). Given the distance from the quarry to these sites, it is not considered likely that the proposed quarrying and restoration activities would have any adverse effects on important feeding, breeding, or roosting sites of the bird species for which the SPAs in the wider hinterland are designated. Furthermore, the agricultural lands of the site do not provide suitable habitat for the wintering waterbird qualifying species of the local SPAs. During bird surveys conducted as part of the EIAR, none of the qualifying species were found to use resources within the quarry site (P17/1532). The Annex I species, Peregrine Falcon (*Falco peregrinus*) was recorded. However, this species is not listed among the qualifying avian species of The Raven SPA or Wexford Harbour & Slobs SPA (Table A6.2).

#### 3.1.4 Potential Significant Effects: Conclusion

The development site is not part of the Natura 2000 sites under consideration here and does not require any resources from them – thereby ruling out any direct habitat loss impacts. Negative impacts on species listed as the qualifying interests of the Raven SPA through disturbance and displacement has also been ruled out, given that the development site (existing quarry and permitted extension area) do not provide suitable habitat for the wintering waterbird qualifying species of this Natura 2000 site.

However, it is considered that the extension and continued operation of quarrying activity has the potential to impact Natura 2000 sites via hydrological connectivity, or by proximity to the proposed development site without the implementation of adequate mitigation measures. Therefore, the proposed development has the potential to result in indirect significant negative effects to Natura 2000 sites within the project ZOI; Screen Hills SAC, Slaney River Valley SAC and Wexford Harbour & Slobs SPA.

## 3.2 Likely Impacts of the Project on the Natura 2000 Sites

As outlined in Section 3.1, it is deemed that the extension and continued operation of quarrying at the development site has the potential to impact Natura 2000 sites within the Project Zone of Influence (ZOI) (Wexford Harbour & Slobs SPA, Slaney River Valley SAC and Screen Hills SAC) via hydrological connectivity or by proximity to the proposed development site without the implementation of adequate mitigation and environmental control measures.

### 3.2.1 Size, Scale & Land-take

The development site consists of an existing operational sand and gravel quarry pit and a proposed quarry extension site (on lands of 8.45ha) which currently comprises of improved agricultural grasslands and is located west and south-west of the existing quarry. It is proposed that a total of c. 1.35 million tonnes of inert materials (soil and stone) will be accepted to site, with a maximum of 80,000 tonnes of inert materials accepted per annum. The current waste license application (W0305-01) to the EPA is to apply for permission to import this material for quarry restoration purposes. The quarry will be progressively restored using the imported material as well as stored topsoil and 3m of

underlying sandy soil to overlay the imported inert infill. The quarry is likely to provide more ecological niches for flora and fauna following restoration than it does at present, as it is intended to be restored to low-medium intensity agricultural use.

Without adequate mitigation measures in place, there is potential for the importation of inert material to have a negative impact on the Natura 2000 Sites within the ZOI via the contamination of groundwater or the introduction of invasive plant species.

### 3.2.2 Distance from or Key Features of the Natura 2000 Sites

The quarry extension site is adjacent to Screen Hills SAC. Without adequate mitigation measures in place, there is potential for the proposed development to contribute towards changes in water quality of Natura 2000 sites within the project ZOI as a result of this proximity. This is related to the potential deposition of dust/sand into water features within Screen Hills SAC or from the spread of invasive plant species introduced by the importation of soil into the development site.

Disturbance and displacement is not an issue for the qualifying interests of any other Natura 2000 site, as there is adequate separation distance between the development site and Natura 2000 sites (>2.2 km). Furthermore, the habitats at the quarry extension site are not suitable for the wader and waterfowl species of qualifying interest in local SPAs.

### 3.2.3 Resource Requirements (water abstraction etc)

There will be no resource requirements (including water abstraction) from Natura 2000 sites as a result of the quarrying or restoration works.

### 3.2.4 Excavation Requirements

The existing quarry is operated to extract sand and gravel (over an area of c. 5.52 ha) and has a permitted output rate of 125,000 tonnes per annum to a maximum depth of 60 m OD. Operations in the permitted extension area seek to extract sand and gravel in the agricultural lands to the west (over an area of c. 8.45 ha) and is proposed to have an output rate of 100,000 per annum to a maximum depth of 38 m OD. The extraction plan involves the stripping of the topsoil (c. 0.3m) and upper 3m of sandy soil which will be stockpiled separately to be used in progressive site restoration. The existing quarry will be extracted and restored fully in accordance with the permitted development.

As there is no requirement for excavations within the boundary of any Natura 2000 site and with extractive depth kept a minimum of 5 m above the groundwater table, no direct impacts relating to the extension and continued operation (including restoration) of the quarry at the development site are predicted.

### 3.2.5 Emission (disposal to land, water or air)

Without adequate mitigation measures in place it is considered that the extension and continued operation (including restoration) of the quarry at the development site (in particular potential groundwater drainage of pollutants to the Glenbough stream, wind-blown dust/sand deposition into nearby waterbodies) have the potential to impact Natura 2000 sites (Wexford Harbour & Slobbs SPA and Slaney River Valley SAC) within the project Zone of Influence. Such impacts cannot be discounted

without site-specific mitigation measures and environmental controls being put in place during the operation of the development site.

### 3.2.6 Transportation Requirements

Transport requirements during quarrying operations will use existing infrastructure and will not occur within the boundaries of any Natura 2000 sites. The proposed extraction rate is lower than currently permitted at this site and there will be no increase in truck movements associated with restoration of the void as the trucks will be backfilled/loaded on the return leg from quarry. There will be a further reduction in traffic movements when extraction is complete and only restoration taking place (post 15<sup>th</sup> year). The proposed extraction rate equates to 31 truck movements per day down from the 39 truck movements permitted at the existing quarry.

Therefore, there are no predicted increases in the levels of traffic associated with the proposed continuation and extension of the quarry. The proposed rate of extraction is similar (but lower) than is in place for the existing quarry. Consequently, there is no concern of likely impacts relating to the transport requirements of the proposed project and the Natura 2000 sites in question.

### 3.2.7 Duration of Operations

It is estimated that quarrying will cease after c. 15 years with progressive restoration continuing until c. Year 20. Quarrying is proposed to begin in the northeast and work southwards in the proposed extension area, progressively restoring exploited areas to semi-natural habitats as quarrying ceases. No potential impacts on Natura 2000 sites as a result of the duration of operations are envisaged.

### 3.2.8 Cumulative and In-combination Effects

There are no other known significant plans or projects in the locality that may give rise to cumulative and in-combination effects.

## 3.3 Likely Changes to the Natura 2000 Sites

As outlined in Section 3.1 above, it is deemed that the extension and continued operation of quarrying at the development site, without the implementation of adequate mitigation measures, potentially result in indirect significant negative effects to Natura 2000 sites within the project ZoI; Wexford Harbour & Slob SPA, Slaney River Valley SAC and Screen Hills SAC.

### 3.3.1 Reduction of Habitat Area

Without adequate mitigation measures in place, there is the potential for a reduction in habitat area of Natura 2000 sites within the project ZoI from the effects of run-off or discharge into the aquatic environment, through the importation of inert soil/stone from outside the development area, which could lead impacts such as increased siltation and/or the introduction of invasive plant species, and windblown dust/sand deposition, during the extension and continued operation and restoration of quarrying at the development site.

### 3.3.2 Disturbance to Key Species

Not applicable.

### 3.3.3 Habitat or Species Fragmentation

Not applicable.

### 3.3.4 Reduction in Species Density

Not applicable.

### 3.3.5 Changes in Key Indicators of Conservation Value (water quality etc.)

Without adequate mitigation measures in place, there is the potential for changes in water quality within the project ZOI from (i) the effects of run-off or discharge into the aquatic environment, particularly through the importation of inert soil from outside the development area which could lead to impacts such as increased siltation and/or the introduction of invasive plant species and (ii) wind-blown dust/sand deposition into nearby waterbodies causing siltation impacts, during the extension and continued operation of quarrying at the development site.

## 3.4 Likely Impacts on the Natura 2000 Sites as a Whole

Without the implementation of best practice environmental controls, and adequate site-specific mitigation measures, there is the potential for changes in water quality within the project ZOI from (i) the effects of run-off or discharge into the aquatic environment, particularly through the importation of inert soil from outside the development area which could lead to impacts such as increased siltation and/or the introduction of invasive plant species and (ii) wind-blown dust/sand deposition into nearby waterbodies causing siltation impacts, during the extension and continued operation of quarrying (and restoration) at the Ballinrooan site.

### 3.4.1 Interference with the Key Relationships that Define the Structure and Function of the Natura 2000 Sites

In the absence of the implementation of best practice measures, and adequate site-specific mitigation measures, it is considered that the extension and continued operation of quarrying at the development site may have the potential to contribute towards significant negative effects that may interfere with the structure and function of Natura 2000 sites within the project ZOI; Screen Hills SAC, Wexford Harbour & Slob SPA and Slaney River Valley SAC.

## 3.5 Indicators of Significance as a Result of the Identification of Effects Set Out Above

As outlined in the above sections, it is considered that the extension and continued operation of quarrying at the development site has the potential to impact Natura 2000 sites (Screen Hills SAC, Wexford Harbour & Slob SPA and Slaney River Valley SAC) within the project Zone of Influence from (i) the effects of run-off or discharge into the aquatic environment, particularly through the importation of inert soil from outside the development area which could lead to impacts such as increased siltation and/or the introduction of invasive plant species and (ii) wind-blown dust/sand deposition into nearby waterbodies causing siltation impacts, without the implementation of best practice measures, or site-specific mitigation measures during the project construction phase.

### 3.5.1 Loss

There is the potential for indirect habitat loss or deterioration of Natura 2000 sites within the project Zol from (i) the effects of run-off or discharge into the aquatic environment, particularly through the importation of inert soil from outside the development area which could lead to impacts such as increased siltation and/or the introduction of invasive plant species and (ii) wind-blown dust/sand deposition into nearby waterbodies causing siltation impacts, during the extension and continued operation of quarrying at the development site.

### 3.5.2 Fragmentation

Not applicable.

### 3.5.3 Disruption

There is the potential for indirect habitat loss or deterioration of Natura 2000 sites within the project Zol from (i) the effects of run-off or discharge into the aquatic environment, particularly through the importation of inert soil from outside the development area which could lead to impacts such as increased siltation and/or the introduction of invasive plant species and (ii) wind-blown dust/sand deposition into nearby waterbodies causing siltation impacts, or contamination during the extension and continued operation of quarrying at the development site.

### 3.5.4 Disturbance

Not applicable.

### 3.5.5 Change to Key Elements of the Site

In the absence of the implementation of appropriate environmental controls and adequate site-specific mitigation measures, it is considered that the extension and continued operation of quarrying (and restoration) at the development site may have the potential to contribute towards significant negative effects that may interfere with the structure and function of Natura 2000 sites within the project Zol; Screen Hills SAC, Wexford Harbour & Slobbs SPA and Slaney River Valley SAC.

## 3.6 Elements of the Project Likely to Significantly Impact on the Natura 2000 Sites or where the Scale or Magnitude of Impacts are Unknown

The quarry extension site has potential hydrological connectivity with two Natura 2000 sites (Slaney River Valley SAC and Wexford Harbour & Slobbs SPA) via groundwater drainage to the source of the Glenbough stream, and is within enough proximity to another Natura 2000 site (Screen Hills SAC) to give rise to the potential impact of wind-blown dust/sand deposition. Significant effects during the extension and continued operation of quarrying at the development site cannot be discounted without the implementation of best practice measures and the implementation of adequate site-specific mitigation measures.

Therefore, it cannot be concluded, that the proposed project, individually or in combination with other plans or projects, will not have a significant effect on a Natura 2000 site, without the consideration and analysis of further information. Therefore Stage 2 NIS (AA) is required.



A Natura Impact Statement (NIS) is presented in **Section 4**, to provide scientific examination of the project to enable the EPA to undertake an AA in relation to Waste License application W0305-01. The NIS will examine potential effects to Natura 2000 sites screened in as part of this assessment; Screen Hills SAC, Wexford Harbour & Slob SPA and Slaney River Valley SAC.

*For inspection purposes only.  
Consent of copyright owner required for any other use.*

## 4 Natura Impact Statement

This section of the report provides the necessary information to inform AA to be completed by the competent authority, Wexford County Council. This NIS provides the relevant scientific information to enable the competent authority in carrying out its AA to determine whether or not the development would adversely affect the integrity of Natura 2000 sites.

The NIS assesses whether or not the quarry extension development, including restoration works would adversely affect the integrity of Natura 2000 sites within the project ZoI, for which effects could not be excluded during the Screening for AA (see **Section 3** for details). The Natura 2000 sites are as follows:

- Screen Hills SAC.
- Slaney River Valley SAC.
- Wexford Harbour & Slob SPA.

The site-specific Conservation Objectives for Screen Hills SAC are as follows ([www.npws.ie](http://www.npws.ie)):

*For inspection purposes only.  
Consent of copyright owner required for any other use.*

### Conservation objectives for Screen Hills SAC [000708]

The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- its natural range, and area it covers within that range, are stable or increasing, and
- the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- the conservation status of its typical species is favourable.

The favourable conservation status of a species is achieved when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.

Objective: To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected:

Code	Description
3110	Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> )
4030	European dry heaths

\* denotes a priority habitat

Site-specific conservation objectives for the qualifying habitats and species of Slaney River Valley SAC have been published. There is no recognisable pathway by which 'old oak woodlands (91A0)' and 'alluvial forests (91E0)' can be impacted by the proposed development. This means that the Annex II aquatic species (lamprey, freshwater pearl mussel, etc.) listed as qualifying interest of Slaney River Valley SAC (Table A6.2) and are sensitive to water quality impacts will not be impacted by the quarry extension development. However, the remaining three habitats, 'estuaries (1130)', 'tidal mudflats and sandflats (1140)' and 'floating river vegetation (3260)', are vulnerable to the effects of deterioration in water quality. The conservation objectives of these habitats are outlined as follows:

### Conservation objectives for: Slaney River Valley SAC [000781]

#### 1130 Estuaries

To maintain the favourable conservation condition of Estuaries in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 3	Habitat area was estimated as 1,905ha using OSi data and the defined Transitional Water Body area under the Water Framework Directive. See marine supporting document for further information
Community distribution	Hectares	The following community types should be maintained in, or restored to, a natural condition: Mixed sediment community complex; Estuarine muds dominated by polychaetes and crustaceans community complex; and Sand dominated by polychaetes community complex. See map 5	The likely area of sediment communities was derived from a combination of intertidal and subtidal surveys undertaken in 2008 and 2010 (ASU, 2009; Aquafact, 2010). See marine supporting document for further information

### Conservation objectives for: Slaney River Valley SAC [000781]

#### 1140 Mudflats and sandflats not covered by seawater at low tide

To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat area	Hectares	The permanent habitat area is stable or increasing, subject to natural processes. See map 4	Habitat area was estimated as 1,027ha using OSi data. See marine supporting document for further information
Community distribution	Hectares	The following community types should be maintained in a natural condition: Estuarine muds dominated by polychaetes and crustaceans community complex; and Sand dominated by polychaetes community complex. See map 5	The likely area of sediment communities was derived from a intertidal surveys undertaken in 2008 (ASU, 2009). See marine supporting document for further information

For inspection purposes only.  
Consent of copyright owner required for any other use.

### Conservation objectives for: Slaney River Valley SAC [000781]

#### 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 6 for mapped known extent	The full distribution of this habitat and its sub-types in this site is currently unknown. The basis of the selection of the SAC for the habitat is the presence of an excellent example of the vegetation assemblage associated with tidal reaches of large rivers between Enniscorthy and Polladern townland (see map 6). This sub-type is characterised by the presence of the rare and protected species short-leaved water-starwort ( <i>Callitriche truncata</i> ) and Opposite-leaved pondweed ( <i>Groenlandia densa</i> ). Other sub-types of the habitat were recorded in two tributaries of the Slaney: <i>Scapanietum undulatae</i> and <i>Pellietum epiphyllae scapanietosum</i> (Derreen River) and <i>Callitricho-Batrachionthe</i> (Derreen and Derry Rivers) (Heuff, 1987). Other examples of these or other sub-types may be present within the SAC
Habitat area	Kilometres	Area stable at 12.6km or increasing, subject to natural processes. See map 6	The full extent of this habitat in this site is currently unknown. The target of 12.6km applies to the tidal sub-type only
Hydrological regime: river flow	Metres per second	Maintain appropriate hydrological regimes	Due to regular disturbance (through variations in flow), river macrophytes rarely reach a climax condition but frequently occur as transient communities. A natural (relatively unmodified) flow regime is required for both plant communities and channel geomorphology to be in favourable condition, exhibiting typical dynamics for the river type (Hatton-Ellis and Grieve, 2003). For most of the sub-types of this habitat, high flows are required to maintain the substratum (see below) necessary for the characteristic species. Flow variation is particularly important, with high and flood flows being critical to the hydromorphology
Hydrological regime: tidal influence	Daily water level fluctuations - metres	Maintain natural tidal regime	The disturbance associated with the tidal regime is the primary driver of the tidal sub-type and rare associated species (see Lansdown, 2008; Preston, 2003; Preston and Croft, 2001)

### Conservation objectives for: Slaney River Valley SAC [000781]

#### 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Substratum composition: particle size range	Millimetres	For the tidal sub-type, the substratum of the channel must be dominated by particles of sand to gravel, with silt at the river margins	Target applies to tidal sub-type only. The size and distribution of substratum particles is largely determined by the river flow and tidal regime. Short-leaved water-starwort ( <i>Callitriche truncata</i> ) has been recorded from gravel-dominated substratum in the centre of the channel, as well as muds in marginal inlets and at the rivers' edge (J. Ryan, pers. comm., PWS Rare and Threatened Species Database, 2011). Opposite-leaved pondweed ( <i>Groenlandia densa</i> ) is typically found on silts, sometimes sands, while needle spike-rush ( <i>Eleocharis acicularis</i> ) requires the marginal fine muds
Water quality: nutrients	Milligrammes per litre	The concentration of nutrients in the water column must be sufficiently low to prevent changes in species composition or habitat condition	The Environmental Protection Agency (EPA) do not monitor the tidal stretch of the Slaney. However, the data from upstream of Enniscorthy suggest the water quality for the tidal stretch is at good status (2007-2009). It is likely that the rare species associated with the tidal sub-type are tolerant of some nutrient enrichment, but may be sensitive to severe enrichment (Preston, 2003). Consequently, water quality should reach Water Framework Directive good status, in terms of nutrient standards, and macroinvertebrate and phytobenthos quality elements (see S.I. 272 of 2009)

### Conservation objectives for: Slaney River Valley SAC [000781]

#### 3260 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation

To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation in the Slaney River Valley SAC, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Vegetation composition: typical species	Occurrence	Typical species of the relevant habitat sub-type reach favourable status	The sub-types of this habitat are poorly understood and their typical species have not yet been defined. Additional typical species and appropriate targets may emerge. The typical species of the tidal sub-type in the Slaney include short-leaved water-starwort ( <i>Callitriche truncata</i> ), opposite-leaved pondweed ( <i>Groenlandia densa</i> ), spiked water-milfoil ( <i>Myriophyllum spicatum</i> ), other pondweeds ( <i>Potamogeton</i> spp.), as well as pioneer vegetation of bare mud, e.g. needle spike-rush ( <i>Eleocharis acicularis</i> ) (NPWS Rare and Threatened Species Database, 2011; NPWS, 1989; J. Ryan, pers. comm.). The tidal stretch also supports important reed beds (including common reed ( <i>Phragmites australis</i> ), greater pond-sedge ( <i>Carex riparia</i> ), reed canary-grass ( <i>Phalaris arundinacea</i> ) and common club-rush ( <i>Schoenoplectus lacustris</i> )), marginal swamp vegetation and freshwater marsh. The invasive macrophyte Nuttall's waterweed ( <i>Elodea nuttallii</i> ) is also known to occur in the tidal stretch of the Slaney (R. Goodwillie, pers. comm.). The typical species may include higher plants, bryophytes, macroalgae and microalgae
Floodplain connectivity: area	Hectares	The area of active floodplain at and upstream of the habitat must be maintained	River connectivity with the floodplain must be maintained. The site of the tidal sub-type in the Slaney River is within an area of floodplain. Floodplain connectivity is particularly important in terms of sediment sorting and nutrient deposition

For inspection purposes only.  
Consent of copyright owner required for any other use.

Site-specific conservation objectives have been published for the Special Conservation Interests (SCI) of Wexford Harbour & Slobbs SPA. For most of the SCI species the conservation objectives are to maintain the favourable conservation condition of these species in the SPA, which is defined by the following list of attributes and targets:



Attribute	Measure	Target	Notes
Population trend	Percentage change	Long term population trend stable or increasing	Waterbird population trends are presented in part four of the conservation objectives supporting document
Distribution	Number and range of areas used by waterbirds	There should be no significant decrease in the numbers or range of areas used by waterbird species, other than that occurring from natural patterns of variation	Waterbird distribution from the 2009/2010 waterbird survey programme is discussed in part five of the conservation objectives supporting document

There are a number of SCI species for which more detailed Conservation Objectives have been prepared; Little Tern and Hen Harrier.

For Little Tern, the conservation objectives are as follows:

### Conservation objectives for: Wexford Harbour and Slobs SPA [4076]

#### A195 Little Tern *Sterna albifrons*

To maintain the favourable conservation condition of Little Tern at Wexford Harbour and Slobs SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline	Measure based on standard tern survey methods (see Walsh et al., 1995). Mitchell et al. (2004) provides summary population information for Wexford. The Seabird Monitoring Programme (SMP) also provides background data (JNCC, 2012)
Productivity rate: fledged young per breeding pair	Mean number	No significant decline	Measure based on standard tern survey methods (see Walsh et al., 1995)
Distribution: breeding colonies	Number; location; area (Hectares)	No significant decline	Little tern nest in well-camouflaged shallow scapes on sand and shingle beaches, spits or inshore islets (Mitchell et al., 2004). Due to the dynamic nature of Wexford Harbour, colony locations can vary from year to year
Prey biomass available	Kilogrammes	No significant decline	Key prey items: Mainly small, often juvenile, fish; invertebrates, especially crustaceans and insects. Key habitats: Very shallow water, advancing or receding tidelines, brackish lagoons and saltmarsh creeks, sand-banks close to the coast. Foraging range: Max 11 km, mean max 6.94 km, mean 4.14 km (BirdLife International Seabird Database (Birdlife International, 2012))

Barriers to connectivity	Number; location; shape; area (hectares)	No significant increase	Seabird species can make extensive use of the marine waters adjacent to their breeding colonies. Foraging range: Max 11 km, mean max 6.94 km, mean 4.14 km (BirdLife International Seabird Database (Birdlife International, 2012))
Disturbance at the breeding site	Level of impact	Human activities should occur at levels that do not adversely affect the breeding little tern population	Little tern nest in well-camouflaged shallow scapes on sand and shingle beaches, spits or inshore islets (Mitchell et al., 2004). Due to the dynamic nature of Wexford Harbour, colony locations can vary from year to year

For Hen Harrier, the conservation objectives are set out as follows:

### Conservation objectives for: Wexford Harbour and Slobs SPA [4076]

#### A082 Hen Harrier *Circus cyaneus*

To maintain the favourable conservation condition of Hen Harrier in Wexford Harbour and Slobs SPA, which is defined by the following list of attributes and targets:

Attribute	Measure	Target	Notes
Roost attendance: individual hen harriers	Number	No significant decline	Wexford Harbour and Slobs SPA contains an important winter roost site for hen harriers. The five year mean peak recorded for this roost (based on the period 2005/06 - 2009/10) equates to five hen harriers. Measure based on standard survey methods (see O'Donoghue, 2011)
Suitable foraging habitat	hectares	No significant decline	Key prey items: broad diet encompassing birds and mammals. Key habitats: Wetlands, scrub, tillage, hedgerows. Estimated potential foraging area within the SPA is calculated from terrestrial areas plus aquatic (terrestrial) habitat 1889.5ha (see the conservation objectives supporting document (for waterbirds) for further information on wetland habitats). Adjacent areas outside of the SPA are also used by hen harrier during the non-breeding season albeit to an unknown extent
Roost site: condition	Area (hectares); structure	The roost site should be maintained in a suitable condition	A winter roost site occurs within Wexford Harbour and Slobs SPA and is estimated to be 14.1ha in size
Disturbance at the roost site	Level of impact	Human activities should occur at levels that do not adversely affect the Hen Harrier winter roost population	Hen Harriers are sensitive to disturbance at roost sites during the non-breeding season

For Wexford Harbour & Slobs SPA Wetlands, the Conservation Objectives are as follows:

### **Conservation objectives for: Wexford Harbour and Slobs SPA [4076]**

#### **A999 Wetlands**

**To maintain the favourable conservation condition of the wetland habitat in Wexford Harbour and Slobs SPA as a resource for the regularly-occurring migratory waterbirds that utilise it. This is defined by the following attribute and target:**

<b>Attribute</b>	<b>Measure</b>	<b>Target</b>	<b>Notes</b>
Wetland habitat area	Hectares	The permanent area occupied by the wetland habitat (see map 3) should be stable and not significantly less than the area of 4,241ha, other than that due to natural patterns of variation	The wetland habitat area was estimated as 4,241ha using OSi data and relevant orthophotographs. For further information see parts three and five of the conservation objectives supporting document

For inspection purposes only.  
Consent of copyright owner required for any other use.

## 4.1 Impact Assessment

### 4.1.1 Characterising Impacts

The methodology for the assessment of impacts is derived from the Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites (EC, 2002). When describing changes/activities and impacts on ecosystem structure and function, the types of impacts that are commonly presented include the following:

- direct and indirect effects,
- short- and long-term effects,
- construction, operational and deconstruction / demolition effects, and
- isolated, interactive and cumulative effects.

Impacts that could potentially occur through the implementation of the project can be categorised under a number of impact categories as outlined in the EC 2002 document as follows:

- Loss/Reduction of habitat area,
- Disturbance to key species,
- Habitat or species fragmentation,
- Reduction in species density, and
- Changes in key indicators of conservation value such as decrease in water quality and quantity.

### Meaning of 'Adversely Affect the Integrity of the Site'

The concept of the 'integrity of the site' is explained in the EU publication Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, as follows;

*'It is clear from the context and from the purpose of the directive that the 'integrity of the site' relates to the site's conservation objectives. For example, it is possible that a plan or project will adversely affect the integrity of a site only in a visual sense or only habitat types or species other than those listed in Annex I or Annex II. In such cases, the effects do not amount to an adverse effect for purposes of Article 6(3), provided that the coherence of the network is not affected. On the other hand, the expression 'integrity of the site' shows that focus is here on the specific site. Thus, it is not allowed to destroy a site or part of it on the basis that the conservation status of the habitat types and species it hosts will anyway remain favourable within the European territory of the Member State.'*

*As regards the connotation or meaning of 'integrity', this can be considered as a quality or condition of being whole or complete. In a dynamic ecological context, it can also be considered as having the sense of resilience and ability to evolve in ways that are favourable to conservation. The 'integrity of the site' has been usefully defined as 'the coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or populations of species for which the site is or will be classified'*

A site can be described as having a high degree of integrity where the inherent potential for meeting site conservation objectives is realised, the capacity for self-repair and self-renewal under dynamic conditions is maintained, and a minimum of external management support is required. When looking at the 'integrity of

the site', it is therefore important to take into account a range of factors, including the possibility of effects manifesting themselves in the short, medium and long-term.

The integrity of the site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives.

#### 4.1.2 Potential Effects from the Proposed Development to Qualifying Habitats and Species of Natura 2000 Sites within the Project Zone of Influence

Potential effects associated with the quarry extension development (and restoration) to the Qualifying Habitats and Species of Natura 2000 Sites within the project Zone of Influence (Screen Hills SAC, Slaney River Valley SAC, and Wexford Harbour & Slobbs SPA) are as follows:

- Outputs and emissions (pollutants such as fuel, oils, hydraulic fluid, wheel wash, or silt-laden run-off) from the proposed development during the continuation and extension of quarry operations leaving the development site and entering the Glenbough Stream via groundwater drainage and continuing to the downstream Natura 2000 sites; Slaney River Valley SAC and Wexford Harbour & Slobbs SPA. Such effects can result in indirect habitat loss or deterioration of these Natura 2000 sites from the effects of run-off or discharge into the aquatic environment through impacts such as increased siltation, nutrient release and/or contamination.
- Dust/sand deposition from the development site during the continuation and extension of quarry operations being blown from the proposed development site and entering ponds and lakes in Screen Hills SAC which is in close proximity to the development site. Such effects can result in indirect habitat loss or deterioration of this Natura 2000 site due to siltation impacts.
- The introduction of invasive plant species via the importation of soil from outside the development area through a hydrological link or through proximity to Natura 2000 sites. Such effects can result in indirect habitat loss or deterioration of this Natura 2000 site due.

## 4.2 Best Practice Design and Mitigation Measures

The measures outlined below will be implemented to ensure that any impacts on the receiving environment will be avoided during the continuation and extension of quarry operations and associated progressive restoration works at the development site.

### 4.2.1 Groundwater Drainage

The measures outlined here are designed to mitigate issues related to the potential for run-off, contamination of groundwater and watercourses and any associated risks to the hydrologically connected Natura 2000 sites.

- Quarrying will proceed in a phased manner from north to south, in line with the topography and natural drainage regime of the landscape, thus preventing pooling of water on the quarry floor.
- The proposed quarry will operate above the groundwater table of the regional aquifer at all times, with the quarry floor at a minimum of >5 m above the water table. There will therefore be no requirement for the abstraction of groundwater in order to excavate the site.
- No water is used in the processing of material in the proposed development.

- The soils and substrates in the proposed development area are highly permeable and well-drained. Rainwater will drain through the substrates to re-charge the groundwater. No changes to the quantity of groundwater or recharge pattern in the Screen Hills SAC area as a result of the proposed activities are anticipated.
- Standard environmental controls such as those in the existing Environmental Management System (EMS) for the existing quarry, will prevent the generation of contaminated surface-water run-off or contaminated groundwater, and there is no potential for indirect water quality impacts arising from the quarrying and restoration works. For example, all fuel will be stored at the nearby farm-yard in a bunded area with a double-skin tank with fuel delivered to the mobile screener in a double-skinned mobile fuel bowser
- In terms of site services, there are no built structures proposed as part of the new application. There is no water supply or foul water drainage serving the site. Persons employed on site use the facilities available at the Applicants family farm-yard located to the west of the site (c. 750 m west) and will be maintained for the proposed development.
- There will be no additional loading on existing waste-water treatment plants as a result of the proposed development.
- Groundwater quality will be monitored regularly throughout the lifetime of the quarry and it is recommended for water quality levels to be taken of Glenbough stream before the proposed development begins and again when the quarry (existing and extension) are in operation.
- The quarry site will be progressively restored throughout the lifetime of the quarry and after quarry operations have ceased. No intensive agricultural practices (e.g. slurry spreading) are to take place on the restored grassland.

#### 4.2.2 Wind-Blown Dust/Sand Deposition

The measures outlined here are designed to mitigate issues related to the potential for wind-blown dust/sand deposition into nearby waterbodies located with Natura 2000 sites in close proximity to the Ballinrooan development site, causing siltation impacts during the extension and continued operation of quarrying at the development site.

- The planting of a new hedgerow along the southern perimeter of the proposed site, phased excavation while progressively restoring/re-seeding exploiting areas, limiting top-soil stripping in windy conditions, use of a wheel wash for vehicles, use of a sprinkler to keep dust/sand down during prolonged dry weather.
- The number of truck movements to the site will be lower than currently permitted, further minimising the potential dust/sand to be blown from the development site into waterbodies located within the directly adjoining Screen Hills SAC.
- A new hedgerow will be planted along the southern boundary of the site, reducing the potential for wind-blown sand into the adjoining Screen Hills SAC.

#### 4.2.3 The Spread of Invasive Plants

The measures outlined here are designed to mitigate issues related to the potential spread of invasive plants via the importation of inert soil which could spread to the adjoining Screen Hill during the extension and continued operation of quarrying at the development site.

- The infill material that will be accepted at the quarry will be inert and contain no topsoil.
- Soil will be subject to basic soil characterisation and visually inspected prior to acceptance.
- Material will only be accepted from pre-approved sites (greenfield sites) and there will be additional soil testing of samples (1 in 500 loads) to provide more information on the quality of the imported material. The wheel-washing and vigilance during the acceptance process will further minimise the risk of introduction of invasive or other unwanted plant species.
- The final restoration works at the site will involve the reinstatement of the 3m of sandy soil and 0.3m of topsoil stripped from the excavated areas. The return of the original topsoil will help ensure that the original seedbank is conserved, and that natural revegetation and succession will proceed at the quarry site as the restoration process is completed.

#### 4.2.4 Restoration

- The extraction plan will involve the stripping of the topsoil (c. 0.3m) and upper 3m of sandy soil which will be stockpiled separately to be used in progressive site restoration.
- The lands are well drained agricultural grassland with no ponds or watercourses of any note. The restoration plan for the proposed extension area involves filling the quarry void with imported inert soil from pre-approved external sites. No peats, topsoil, non-hazardous wastes or contaminated soils will be accepted as suitable infill material.
- Once infilling is completed in an area the stockpiles of sandy soil and topsoil will be used to reinstate the top 3.3m of overburden. The existing seedbank will naturally revegetate the restored areas to grassland habitat.
- The extended quarry area will be progressively restored to semi-natural habitats using indigenous soils and substrates after quarrying ceases. These soils will be used to effectively cap the infilled void. This will help to retain the natural seed-bank of the area.
- An annual walkover of the site will be carried out by an ecologist to monitor the restoration process and to ensure that the measures are being effectively implemented. An annual report will be prepared and submitted for the attention of Wexford County Council. The monitoring will also map encroachment of scrub, invasive species and rank grassland, and recommend appropriate actions to maintain biodiversity. Management of lands within the application site will be informed by the ecological advice and successful implementation of management strategies will be tracked on an annual basis.

### 4.3 NIS Summary and Conclusion

#### 4.3.1 Integrity of The Site

From the *Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* (EC, 2002), the meaning of integrity is described as follows:

*'The integrity of a site involves its ecological functions. The decision as to whether it is adversely affected should focus on and be limited to the site's conservation objectives'.*

The concept of the 'integrity of the site' is also explained in the EU publication *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* (EC, 2000), as follows:

*'It is clear from the context and from the purpose of the directive that the 'integrity of the site' relates to the site's conservation objectives. For example, it is possible that a plan or project will adversely affect the integrity of a site only in a visual sense or only habitat types or species other than those listed in Annex I or Annex II. In such cases, the effects do not amount to an adverse effect for purposes of Article 6(3), provided that the coherence of the network is not affected. On the other hand, the expression 'integrity of the site' shows that focus is here on the specific site. Thus, it is not allowed to destroy a site or part of it on the basis that the conservation status of the habitat types and species it hosts will anyway remain favourable within the European territory of the Member State.*

#### 4.3.2 Integrity of the Natura 2000 Sites within the Project Zone of Influence

Potential for any significant adverse effects will be resolved through the implementation of the mitigation commitments outlined in section 4.2 above.

From the information gathered and the predictions made about the changes that are likely to result from the construction and operational stages of the project and the mitigation measures proposed to avoid impacts to the hydrologically connected Natura 2000 site, an Integrity of Site Checklist for Natura 2000 sites considered in this Natura Impact Statement is presented in Table 4-1 below.

**Table 4-1: Integrity of Site Checklist for Natura 2000 Sites within the Project Zone of Influence**

Conservation Objectives		
Does the project have the potential to:	Yes or No	Comment
Cause delays in progress towards achieving the conservation objectives of the site?	No	There will be no direct impacts to the QIs/SCIs of Natura 2000 sites located within the project Zol and considered in this NIS. Potential indirect effects to Natura 2000 sites via (i) groundwater drainage to the source of the Glenbough stream, (ii) through wind-blown dust/sand deposition and (iii) the introduction of invasive plant species through the importation of soil from outside of the development site have been considered in the above assessment. Works practices and design measures have been proposed as adequate site-specific mitigation measures to address (i) all potential impacts to groundwater quality and by extension effects to those Natura 2000 sites with a hydrological connection; i.e. Slaney River Valley SAC and Wexford Harbour & Slobbs SPA, (ii) all potential impacts of sand/dust carried to Natura 2000 sites in close proximity to the development site; i.e. Screen Hills SAC and (iii) all potential impacts of the spread of invasive plant species to hydrologically linked Natura 2000 sites and Natura



Conservation Objectives		
Does the project have the potential to:	Yes or No	Comment
		2000 sites in close proximity to the development site. The proposed development will therefore not cause delays in achieving the conservation objectives of Natura 2000 sites within project Zol.
Interrupt progress towards achieving the conservation objectives of the site?	No	The proposed development will not interrupt the achievement the site's Conservation Objectives or those factors that help maintain the favourable conditions of the site or interfere with the distribution and density of key indicator species.
Disrupt those factors that help to maintain the favourable conditions of the site?	No	Potential indirect effects to Natura 2000 sites via groundwater drainage to the source of the Glenbough stream, through wind-blown dust/sand deposition, and by the introduction of invasive plant species through the importation of soil/stone from outside of the development site have been considered in the above assessment.
Interfere with the balance, distribution and density of key species that are the indicators of the favourable condition of the site?	No	Works practices and design measures have been proposed as adequate site-specific mitigation measures to address (i) all potential impacts to groundwater quality and by extension effects to those Natura 2000 sites with a hydrological connection; i.e. Slaney River Valley SAC and Wexford Harbour & Slobbs SPA, (ii) all potential impacts of sand/dust carried to Natura 2000 sites in close proximity to the development site; i.e. Screen Hills SAC and (iii) all potential impacts of the spread of invasive plant species to hydrologically linked Natura 2000 sites and Natura 2000 sites in close proximity to the development site.
Other Objectives: Does the project have the potential to:	Yes or No	Comment
Cause changes to the vital defining aspects (e.g. nutrient balance) that determine how the site functions as a habitat or ecosystem?	No	The proposed development will not cause changes to the defining aspects or the dynamics of key relationships associated with Natura 2000 sites. Potential indirect effects to Natura 2000 sites via (i) groundwater drainage to the source of the

Conservation Objectives		
Does the project have the potential to:	Yes or No	Comment
Change the dynamics of the relationships (between, for example, soil and water or plants and animals) that define the structure and/or function of the site?	No	Glenbough stream, (ii) through wind-blown dust/sand deposition and (iii) via the introduction of invasive plant species through the importation of soil from outside of the development site have been considered in the above assessment. Works practices and design measures have been proposed as adequate site-specific mitigation measures to address (i) all potential impacts to groundwater quality and by extension effects to those Natura 2000 sites with a hydrological connection; i.e. Slaney River Valley SAC and Wexford Harbour & Slobbs SPA, (ii) all potential impacts of sand/dust carried to Natura 2000 sites in close proximity to the development site; i.e. Screen Hills SAC and (iii) all potential impacts of the spread of invasive plant species to hydrologically linked Natura 2000 sites and Natura 2000 sites in close proximity to the development site.
Interfere with predicted or expected natural changes to the site (such as water dynamics or chemical composition)?	No	The proposed development will not interfere with predicted or expected natural changes to Natura 2000 sites. Potential indirect effects to Natura 2000 sites via (i) groundwater drainage to the source of the Glenbough stream, (ii) through wind-blown dust/sand deposition and (iii) via the introduction of invasive plant species through the importation of soil from outside of the development site have been considered in the above assessment. Works practices and design measures have been proposed as adequate site-specific mitigation measures to address (i) all potential impacts to groundwater quality and by extension effects to those Natura 2000 sites with a hydrological connection; i.e. Slaney River Valley SAC and Wexford Harbour & Slobbs SPA, (ii) all potential impacts of sand/dust carried to Natura 2000 sites in close proximity to the development site; i.e. Screen Hills SAC, and (iii) all potential impacts of the spread of invasive plant species to hydrologically linked Natura 2000 sites and Natura

Conservation Objectives		
Does the project have the potential to:	Yes or No	Comment
		2000 sites in close proximity to the development site.
Reduce the area of key habitats?	No	The proposed development will not result in the loss, reduction or change of key features associated with Natura 2000 sites. The proposed development is not located within proximity of a Natura 2000 site. The proposed development is located within a rural agricultural setting and the development footprint is not within any designated conservation sites, nor does it require any resources from these sites; thereby ruling out any direct habitat loss at the conservation sites in question. Indirect habitat loss or deterioration of designated sites within the surrounding area could occur from the effects of (i) run-off or discharge into the aquatic environment through impacts such as increased siltation and/or contamination, (ii) wind-blown dust/sand deposition in waterbodies associated with Natura 2000 sites in close proximity to the development area causing siltation impacts, or (iii) the introduction of invasive plant species through the importation of soil from outside of the development site. However, works practices and design measures have been proposed as adequate site-specific mitigation measures to address (i) all potential impacts to groundwater quality and by extension effects to those Natura 2000 sites with a hydrological connection; i.e. Slaney River Valley SAC and Wexford Harbour & Slobbs SPA, (ii) all potential impacts of sand/dust carried to Natura 2000 sites in close proximity to the development site; i.e. Screen Hills SAC, and (iii) all potential impacts of the spread of invasive plant species to hydrologically linked Natura 2000 sites and Natura 2000 sites in close proximity to the development site.
Reduce the population of key species?	No	
Change the balance between key species?	No	
Reduce diversity of the site?	No	

Conservation Objectives		
Does the project have the potential to:	Yes or No	Comment
Result in disturbance that could affect population size or density or the balance between key species?	No	The proposed development will not result in disturbance that will affect population size or densities of Qualifying features associated with the Natura 2000 sites within the project Zol. The proposed development is not located within proximity to Natura 2000 sites that would result in disturbance effects to species of qualifying interest.
Result in fragmentation?	No	There will be no fragmentation of Natura 2000 sites within the project Zol given the distance from and lack of immediate proximity and connectivity to Natura 2000 sites within the project Zol.
Result in loss or reduction of key features (e.g. tree cover, tidal exposure, annual flooding, etc.)?	No	The proposed development will not result in the loss or reduction of key features of Natura 2000 Sites. The proposed development is not located within proximity of Natura 2000 sites.

#### 4.4 Conclusion

The AA Screening (see **Section 3**) found that it could not be excluded, on the basis of objective scientific information that the proposed works, individually or in combination with other plans or projects, would have a significant effect on a Natura 2000 site. Therefore, a NIS (presented in **Section 4**) was required to ascertain whether the proposed works would have an adverse effect on the integrity of the Natura 2000 sites.

Best practice environmental control measures and adequate site-specific mitigation measures (as outlined within **Section 4.2**) have been identified to ensure that potential pollutant sources are not released from the proposed development to the receiving environment such that there will be no risk of adverse effects on these Qualifying Features of Natura 2000 sites within this project's Zol.

**It has been objectively concluded that the proposed residential development will not adversely affect the integrity of a Natura 2000 site, and there is no reasonable scientific doubt in relation to this conclusion.**

## 5 References

**Department of Environment, Heritage & Local Government (2009).** Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities. DoEHLG, Dublin.

**European Commission (2001).** Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – European Commission Methodical Guidance on the provisions of Article 6(3) and 6(4) of the ‘Habitats’ Directive 92/43/EEC. European Commission DG Environment, Oxford UK.

**Fossitt, J.A. (2000).** A Guide to Habitats in Ireland. The Heritage Council.

**Goodwillie, R. (2009).** Retention and development of sandpit at Ballinrooan, Screen, Co. Wexford. Prepared for Wexford County Council.

**NPWS (2011a).** River Slaney Valley SAC (site code 781). Conservation objectives supporting document - woodland habitats. Version 1, August 2011.

**NPWS (2011b).** Wexford Harbour & Slobs SPA (site code 4076) and The Raven SPA (site code 4019) conservation objectives supporting document. Version 1. December 2011.

**NPWS (2018).** Screen Hills SAC (site code 708) conservation objectives supporting document. Version 6. February 2018.

For inspection purposes only.  
Consent of copyright owner required for any other use.