

4. FLORA AND FAUNA	2
4.1 Introduction & Methodology	2
4.2 Desktop Study	2
4.2.1. Extract from the NPWS on the conservation status of River Finn SAC IE 002301	2
4.2.2 Application for Leave to apply for Substitute Consent.....	3
4.2.3 Board Decision regarding Appropriate Assessment	4
4.3 Existing Environment	5
4.4 Evaluation	6
4.5 Potential Impacts.....	7
4.6 Mitigation Measures	7
4.7 Conclusion	7
Appendix 4.1 Ecological stress of dust spoiling on Demolition and Construction sites.....	8

4. FLORA AND FAUNA

4.1 Introduction & Methodology

This section of the report considers the effect of the quarry on the local environment of Gortletteragh. As this is an already existing quarry the effect on the local ecology is reduced due to longevity of the quarry activity at this site. It will also describe any remedial measures that have been undertaken.

It included both a desktop study and a site walkover survey.

4.2 Desktop Study

A desktop study of was carried out of the NPWS web site¹ EU Natura sites (SAC and SPA) and nationally designated Natural Heritage Areas (NHA) including the NPWS metadata maps² within a 10 kilometer radius of the quarry site. The existing quarry is not located within an area of conservation either nationally or under the European Natura Habitats Directive, however a small stream from the site into which discharged trade emissions are discharged after prior treatment License Lwat63, is a part of the River Finn SAC 002301. The River Finn is an Annex I habitat for Otter and Salmon, the river Finn is also a prime salmonoid fishing river.

Guidance manuals consulted: -

- “Managing Natura 2000 sites” The provisions of Article 6 EU Habitats Directive 92/43/EEC (2000) European Commission.

The following assessment has reviewed existing bird surveys within the locality.

1. The existing land use, of the proposed development site.
2. Wild fowl in the local environment
3. The cumulative effect of other local projects on wild fowl populations.
4. Review of the Water Framework Directive.

The information accumulated and reviewed provides the parameters to assess the project and identify the occurrence of cumulative/ residual impact; the significance of the impact, and if mitigation (remedial) measures are required.

4.2.1. Extract from the NPWS on the conservation status of River Finn SAC IE 002301

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

¹ <http://www.npws.ie/protectedsites/>

² <http://webgis.npws.ie/npwsviewer/>

Code Description

- 3110 Oligotrophic waters containing very few minerals of sandy plains {Littorelletalia uniflorae}
- 4010 Northern Atlantic wet heaths with Erica tetra/ix
- 7130 Blanket bogs (* if active bog)
- 7140 Transition mires and quaking bogs

*Denotes a priority habitat

Code	Common Name	Scientific name
1106	Salmon	<i>Salmo solar</i>
1355	Otter	<i>Lutra Lutra</i>

The River Finn flows from Donegal uplands east ward on through the Twin Towns of Ballybofey and Stranorlar, the River from Glenfin becomes wider, deeper with steep embankments, with prime traditional pasture fields and areas of woodland on either bank. The River is a priority habitat for Salmon (*Salmo Salar*) and Otter (*Lutra Lutra*).



Plate 4.1 River Finn

The River Finn has a reputation as one of the best salmon and sea trout rivers in Europe. As stocking densities are below EU minimum levels at present a Catch and Release Policy is in force.

4.2.2 Application for Leave to apply for Substitute Consent

The Board Inspectors report on the application for leave to apply for substitute consent stated under the heading of Screening for appropriate assessment, that: -

The board's decision under 05. QV0012 also establishes that the development which was carried out on the site before May 2012 did not require an appropriate assessment. The

additional development that was carried out on the site since May 2012 was insignificant in scale compared to that which already occurred on the site and was, both in itself or in combination with any other works, much smaller than that described in the reasons and considerations (1)(b) of the board's previous decision. The subsequent works would also have been within the scope of those considered by the planning authority before its grant of permission under Reg. Ref. 09/60032. The effluent from them would have been subject to the discharge licence issued by the county council. No circumstances have therefore arisen which would support a different conclusion from the one reached by the board under 05. QV0012 with regard to screening for appropriate assessment. The development which is the subject of this application would not give rise to any potential for an impact on the SAC at the River Finn, or any other Natura 2000 site, that was not considered by the board before its previous decision. It is reasonable to conclude that on the basis of the information on the file, which I consider adequate in order to issue a screening determination, that the development on the site, individually or in combination with other plans or projects would not be likely to have a significant effect on the River Finn SAC no.002301, or any other European site, in view of the site's Conservation Objectives, and a Stage 2 Appropriate Assessment and the submission of a remedial NIS would therefore not be necessary for an application for substitute consent for the prior development on this site

4.2.3 Board Decision regarding Appropriate Assessment

Following from the inspector's assessment, set out above, the Board decided that Appropriate Assessment was not necessary and in its 'Reasons and Considerations' stated: -

The Board noted that the proposed development is not directly connected with or necessary to the management of a European Site.

In completing the screening for Appropriate Assessment, the Board accepted and adopted the screening assessment and conclusion carried out in the Inspector's report in respect of the identification of the European sites which could potentially be affected, and the identification and assessment of the potential likely significant effects of the proposed development, either individually or in combination with other plans or projects, on these European sites in view of the site's Conservation Objectives. Having regard to that assessment and the conclusions reached by the Board in its review of the determination made by the planning authority under Section 261A of that Act with respect to the quarry on the site (reference number 05. QV.0012), the Board is satisfied that the development, either individually or in combination with other plans or projects, would not have been likely to have had a significant effect on the River Finn Special Area of Conservation (Site Code: 002301), or any other European site, in view of the site's Conservation Objectives.

4.3 Existing Environment

The quarry is located in pasture land. The main land use within this locality is cattle grazing pasture, the quarrying of dimension stone and woodland.

Using the JNNC method of habitat survey the following habitat codes have been used.

Within the quarry land holding, the main habitat is Quarry (I2.1) while the majority of the remaining land is (B2) semi Improved grassland, enclosed by tree and shrub hedgerow (J2.1) which is over grown and consists generally of species poor. An intact woodland boundary edge habitat is located to the Northeast (A.3.1) mixed semi natural woodland. This woodland provides a boundary buffer zone between the local road through the conifer plantation and the quarry. To the north of the site consist of local indigenous shrub (A.2.2.). To the west of the site in the low lying grassland where the settlement lagoons are located is damp grassland though not marshy contains a number of marsh grasses (B.5.). The entrance to the site from the south in the past few years has a boundary hedge of Leyland cypress, planted to provide a visual buffer zone for the quarry.

The habitat at this site is rural agricultural and of local provenance. The proposed site is located sheds and stock holding areas.

The proposed site is located within agricultural pasture land, site Phase One habitat survey revealed two main habitats within the surrounding ecological landscape of the proposed site with mixed tree and shrub field boundary (JNNC habitat code J.3.1. - Hedgerow tree and shrub native species).

The site of the operational quarry is not included within the roosting or foraging area of migratory wildfowl.



Plate 5.2

Mistle thrush during summer 2014



Plate 5.3. Jackdaws in tree above the north section of the quarry

A survey of the track road around the quarry was undertaken during the early spring of 2015.

The area of woodland to be retained to the north section of the quarry consists of mixed shrub and tree.

The area has a good population of woodland passerine birds including blackbird, thrush, robin, blue tit, wren, Chaffinch and Gold finch.

Shrub includes black berry bramble, Hawthorn, Black thorn, holly, Alder, Ash, Sycamore and to the northeast boundary edge stands alone exotic Monkey puzzle tree.

The ecology and habitats surrounding the quarry are of local provenance.

4.4 Evaluation

The site contains species that would be expected in the general area. None of them are rare and there is little likelihood that a visit in winter or summer would discover any unusual species.

A notable feature is the lack of introduced plants which are often a feature of quarrying activities.

The only local designated area is the River Finn SAC (002301) and it has been determined by Bord Pleanala that *the Board is satisfied that the development, either individually or in combination with other plans or projects, would not have been likely to have had a significant effect on the River Finn Special Area of Conservation (Site Code: 002301), or any other European site, in view of the site's Conservation Objectives.*

4.5 Potential Impacts

The impact of quarrying is obviously negative in that all existing habitats and wildlife were removed once excavation and extraction began. However, in unused parts of a site or where stability is ensured for a year or more, the natural processes of plant succession begin and may give rise to significant interest and ecological value. Many exhausted quarries in fact retain a high level of biodiversity, much greater than their surrounding farmland, and some are listed as sites of ecological value.

No protected species of flora were identified during the field survey and the surrounding area does not host any species of conservation value.

The potential impacts on birds and mammals were assessed from the point of view of loss of habitat. Of the bird species recorded in the 2015 survey, none are listed on Annex I or II of the EU Birds Directive. The sparse nature of sufficient cover across the site combined with disturbance from the quarry and soil extraction means that the site is highly unlikely to support breeding by any listed species. Similarly no significant impact on mammals is likely to arise as a result of development. While a degree of land disturbance has occurred, albeit very small in this case, no direct impact on mammal population is considered to have occurred and no fragmentation of habitats.

4.6 Mitigation Measures

Before the decommissioning of the exhausted quarry, it is advised that a landscape and ecology plan is designed to restore and enhance the worked out quarry area, that is sympathetic to the surrounding ecological landscape. At present due to the proposed duration of future quarrying at this site it would be premature to design a landscape ecology plan as part of quarry decommissioning.

Existing mitigation measures include the settlement pond system for effluent from the quarry. This operates well and is the main eliminates the source of sediment that could escape the site.

A planted berm along the eastern site boundary would do much to hide the quarry from the nearby road and dwelling and would also provide habitat for additional birdlife. Native trees and hedgerows should be used in order not to draw attention to the planting.

4.7 Conclusion

On the basis of the information gathered from the desk based and site surveys it is concluded that while the impact of the operation of the quarry has been considerable in that the natural ground cover, soil and plants have been removed, that the ecological impact has been small quarry and has not had a significant adverse impact on the various aspects of the environment investigated. No habitat of value has been affected by the development and there is no likelihood, or evidence, of any impact on a Natura 2000 site.

Appendix 4.1 Ecological stress of dust spoiling on Demolition and Construction sites

The effects of dust spoiling on vegetation have the potential to create ecological stress within the local plant community. The ecological stress due to demolition works and small scale construction is usually of short term duration, with plant community recovery occurring within a year of the dust soiling stress. The effects of dust soiling on plant community may be of longer duration on large scale construction sites where site works continue over an extended period of time.

Long term impact: (EU Natura sites: SAC and areas of national conservation value)

Where the main up-take affecting vascular plants is for a longer period of demolition /construction works, that may have an adverse effect on rhizome sphere.

Cement dust on hydration liberates calcium hydroxide which can raise leaf surface alkalinity. The raise in levels of alkalinity can hydrolyze lipid and wax components, penetrate the cuticle, and denature proteins finally plasmolyzing the leaf (Guderian, 1986³; Limestone dust coating of lichen thallus damaged its photosynthetic apparatus (Arianoutsou et al., 1993)⁴. All this has the potential leading to change in plant community structure and function. Noticeable effects are the increase in ruderal and pioneer plant communities.

Medium impact

During continuous dry weather periods where dust deposition spoils coats the foliage with dust spoil causing the reduction in light required for photosynthesis, increasing leaf temperature due to changed optical properties on leaf surface, thereby changing the energy exchange.

Alkaline dust materials may cause leaf surface damage, a temporary short term impact occurring during the short term of demolition and or construction period.

Short term

Dust deposition spoil that occurs during periods of rainfall, removing dust particles from foliage, and rapidly leaching out via rhizomes via soils cation exchange capacity.

The interception of dust spoil by vegetation makes an important contribution to the improvement of air quality in the vicinity of the demolition/construction site. The contractor should be advised to retain existing boundary trees and shrub, as buffer zones to aid the capturing dust spoil, and limit its spread.

³ Guderian R. 1986. Terrestrial ecosystems: particulate deposition. In: Air Pollutants and Their Effects on the Terrestrial Ecosystem (Legge AH, Krupa SV, eds). Advances in Environmental Science and Technology (Vol. 18). 339-363, Wiley, New York, USA

⁴ Arianoutsou M, Lanaras T, Zaharopoulou A. 1993. Influence of dust from a limestone quarry on chlorophyll degradation of the lichen *Physcia adscendens* (Fr.) Oliv. Bulletin of Environmental Contaminants and Toxicology, 50: 852-855