Appendix 1

Scoping Responses

An Taisce
The National Trust for Ireland

20121024-07-MKOSQUARRY1

Noriana Kennedy
McCarthy Keville O'Sullivan
Block 1 GFSC
Moneenagerha Road
Galway

08.11.2012

Re: Remedial Environmental Impact Statement Scoping Document for Quarry at Shannapheasteen, Costello, Co.Galway.

Dear Ms. Kennedy,

Thank you for your letter dated 05th November requesting comment on the above.

Site is in location surrounded by Natura 2000 and Natural Heritage Area designations. The justification for quarrying and site suitability in this area needs to be considered. There is no planning permission relevant to the site. 10/702 was for ancillary development and was withdrawn.

The High Court Judgement on the McQuaid Quarry, Co Monaghan, An Taisce Vs An Bord Pleanala 2010 overturning a permission based on Section 261 registration and alleged pre 1964 status should be noted.

We would also appreciate confirmation that none of the works or structures referred to in 10/702 have been carried out.

Yours sincerely,

IAN LUMLEY
Built Environment and Heritage Officer
adminplan@antaisce.org

Lorraine Meehan

From: Noriana Kennedy
Sent: 02 May 2013 12:08
To: Lorraine Meehan
Subject: FW: 120417 - Remedial EIA Scoping Document - Quarry at Shannapheasteen, Co Galway

Noriana Kennedy

McCarthy Keville O'Sullivan Ltd.
Planning & Environmental Consultants

Block 1, G.F.S.C. Moneenageisha Road, Galway.
T: (091) 73 56 11 || F: (091) 77 12 79 || E: info@mccarthykos.ie || W: www.mccarthykos.ie

From: Devapp [mailto:Devapp@ahg.gov.ie]
Sent: Tuesday, November 06, 2012 11:35 AM
To: Noriana Kennedy
Subject: RE: 120417 - Remedial EIA Scoping Document - Quarry at Shannapheasteen, Co Galway

Hi Noriana,

Thank you for your prompt reply. Unfortunately, in the case of a live or post-decision development application, the Department of Arts, Heritage and the Gaeltacht may, in accordance with the statutory provisions, correspond only with the relevant planning authority, or with An Bord Pleanála in the event of an appeal. As the determinations have already been made by the Planning Authorities and will be adjudicated on by An Bord Pleanála, the Department is not in a position to offer observations at this time.

If you require further advice or have any further queries regarding this matter, please contact this office.

Kind regards,

Yvonne Nolan,
Development Applications Unit,
Department of Arts, Heritage and the Gaeltacht,
Newtown Road,
Wexford.

Ph: (053) 9117382

From: Noriana Kennedy [mailto:nkennedy@mccarthykos.ie]
Sent: 06 November 2012 10:51
To: Devapp
Subject: RE: 120417 - Remedial EIA Scoping Document - Quarry at Shannapheasteen, Co Galway

Hi Yvonne,

Yes the requirements of Section 261a registration process have been fulfilled by all three quarries (ref 120417, 120816 and 120916). Full details of the determinations and conditions are detailed in section 2.4 (Planning History) of the scoping document.

Let me know if you've any other questions,

Kind regards,

Noriana Kennedy

McCarthy Keville O'Sullivan Ltd.
Planning & Environmental Consultants

Block 1, G.F.S.C. Moneenageisha Road, Galway.
T: (091) 73 56 11 || F: (091) 77 12 79 || E: info@mccarthykos.ie || W: www.mccarthykos.ie

From: Devapp [mailto:Devapp@ahg.gov.ie]
Sent: Tuesday, November 06, 2012 10:33 AM
To: Noriana Kennedy
Subject: RE: 120417 - Remedial EIA Scoping Document - Quarry at Shannapheasteen, Co Galway
Importance: High

Hi Noriana,

I refer to your email below re 120471 and also your emails regarding 120816 and 120916. Could you please advise if the planning authorities have already made determinations on these quarries under Section 261a of the Planning and Development Acts?

Kind regards,

Yvonne Nolan,
Development Applications Unit,
Department of Arts, Heritage and the Gaeltacht,
Newtown Road,
Wexford.

Ph: (053) 9117382

From: Noriana Kennedy [mailto:nkennedy@mccarthykos.ie]
Sent: 06 November 2012 09:49
To: Devapp
Subject: 120417 - Remedial EIA Scoping Document - Quarry at Shannapheasteen, Co Galway

Dear Sir or Madam,

Please find attached PDF of the Remedial EIA scoping document for the Quarry at Shannapheasteen, Costello, Co Galway ref 120417 including cover letter.

As part of the REIA process, I would appreciate any comments that you might have in relation to the subject quarry development. I would be grateful if you could pass this PDF scoping pack to whichever person or section within the Department of Agriculture, Food and the Marine that you deem to be in the best position to assess them. I would appreciate if you could return any comments or suggestions at your earliest convenience. If you require any further information, please do not hesitate to contact me.

Kind regards,

Noriana Kennedy

McCarthy Keville O'Sullivan Ltd.
Planning & Environmental Consultants

Block 1, G.F.S.C. Moneenageisha Road, Galway.
T: (091) 73 56 11 || F: (091) 77 12 79 || E: info@mccarthykos.ie || W: www.mccarthykos.ie

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Is faoi rún agus chun úsáide an té nó an aonán atá luaite leis, a sheoltar an ríomhphost seo agus aon comhad atá nasctha leis. Má bhfuair tú an ríomhphost seo trí earráid, déan teagmháil le bhainisteoir an chórais.

Deimhnítear leis an bhfo-nóta seo freisin go bhfuil an teachtaireacht ríomhphoist seo scuabtha le bogearraí frithvíorais chun víorais ríomhaire a aimsiú.

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An Roinn Ealaíon, Oidhreachta agus Gaeltachta, ag tacú le Tóstal Éireann 2013. Téigh chuig www.thegatheringireland.com agus Bí Páirteach ann!

Department of Arts, Heritage and the Gaeltacht, supporting the Gathering Ireland 2013. Go to www.thegatheringireland.com and Be Part of it!

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Tá an t-eolas sa ríomhphost seo faoi rún, chomh maith le gach comhad atá ceangailte leis, agus i gcomhair úsáid an duine nó an chórais a bhfuil sé dírithe air amháin. Má fhaigheann tú an ríomhphost seo trí bhotún, cuir scéal chugainn ag webmaster@ahg.gov.ie. Tá an ríomhphost seo arna sheiceáil ag scanóir víreas agus dealramh air go bhfuil sé glan.

The information in this email, and any attachments transmitted with it, are confidential and are for the intended recipient only. If you receive this message in error, please notify us via webmaster@ahg.gov.ie . This e-mail has been scanned by a virus scanner and appears to be clean.

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Is faoi rún agus chun úsáide an té nó an aonán atá luaite leis, a sheoltar an ríomhphost seo agus aon comhad atá nasctha leis. Má bhfuair tú an ríomhphost seo trí earráid, déan teagmháil le bhainisteoir an chórais.

Deimhnítear leis an bhfo-nóta seo freisin go bhfuil an teachtaireacht ríomhphoist seo scuabtha le bogearraí frithvíorais chun víorais ríomhaire a aimsiú.

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An Roinn
Talmhaíochta,
Iascaigh agus Bia
Department of
Agriculture,
Fisheries and Food

8th November, 2012

Ms Noriana Kennedy
McCarthy Keville O'Sullivan Ltd
Block 1 G.F.S.C.
Moneenagesha Road
Galway

Your Ref: 120417

Re: Remedial Environmental Impact Assessment Scoping Document – Quarry at Shannapheasteen, Costello, Co. Galway

Dear Ms. Kennedy,

I refer to your recent correspondence concerning the above.

At this time, The Department of Agriculture, Food and the Marine has no relevant information to offer that would be of assistance in the preparation of the Remedial Environmental Impact Statement.
I would however, suggest that your firm consider as part of the Remedial Environmental Impact Assessment process the likely impact, if any, on agriculture/agricultural activities since the quarry was developed in the locality.

Yours sincerely,

_____.
Noel O'Connor
Climate Change Section

Áras an Chontae,
Cnoc na Radharc, Gaillimh.
Áras an Chontae,
Prospect Hill, Galway.

Fón/Phone: (091) 509 000
Facs/Fax: (091) 509 010
Idirlíon/Web: www.galway.ie
www.gaillimh.ie

SMS: (087) 7799888
Twitter: @galwaycoco

Iasachtaí/Deontais Tithíochta
Housing Loans/Grants
☎(091) 509 301
✉housing@galwaycoco.ie

Iarratais Tithíochta
Housing Applications
☎(091) 509 300
✉housing@galwaycoco.ie

Seirbhísí Corparáideacha
Corporate Services
☎(091) 509 225
✉corpserv@galwaycoco.ie

Timpeallacht & Tréidliachta
Environment & Veterinary
☎(091) 476 402
✉environment@galwaycoco.ie

Bóithre, Iompar & Muirí
Roads, Transportation & Marine
☎(091) 509 309
✉roads@galwaycoco.ie

Acmhainní Daonna
Human Resources
☎(091) 509 303
✉hr@galwaycoco.ie

Mótarcháin
Motor Taxation
☎(091) 509 099
✉motortax@galwaycoco.ie

Ceadúnais Tiomána
Driving Licences
☎(091) 509 305
✉motortax@galwaycoco.ie

Clár na dToghthóirí
Register of Electors
☎(091) 509 310
✉electors@galwaycoco.ie

Seirbhísí Uisce
Water Services
☎(091) 476 401
✉water@galwaycoco.ie

Pobal & Fiontar
Community & Enterprise
☎(091) 476 400
✉community@galwaycoco.ie

Pleanáil
Planning
☎(091) 509 308
✉planning@galwaycoco.ie

Leabharlann
Library
☎(091) 562 471
✉info@galwaylibrary.ie

Our Ref.: MD/FMcE

Your Ref: 120417

Comhairle Chontae na Gaillimhe
Galway County Council

20th November 2012

Ms. Noriana Kennedy B.Sc. (Env.)
McCarthy Keville O'Sullivan Ltd.
Block 1, G.F.S.C.
Moneenageisha Road,
Galway

RE: Remedial Environmental Assessment Scoping Document – Quarry at Shannapheasteen, Costello, Co Galway.

A Chara,

I refer to your letter dated 05th November 2012, regarding the above.

I wish to advise that the site of the quarry in question is located close to Glenicmurrin Lough which is the source of the proposed Costello Regional Water Supply Scheme.

The impacts of the quarry operation on the Glenicmurrin Lough and its catchment area will have to be examined.

Trusting this meets with your requirements,

Mise le meas,

Michael Dolly,
Senior Engineer,
Water Services (Capital)

Suirbhéireacht Gheolaíochta Éireann
Tor an Bhacaigh
Bóthar Haddington
Baile Átha Cliath

Geological Survey of Ireland
Beggars Bush
Haddington Road
Dublin 4

Noriana Kennedy
McCarthy Keville O'Sullivan Ltd.
Block 1, G.F.S.C.
Moneenageisha Road
Galway

Sophie Préteseille
Heritage and Planning Section
Email: sophie.preteseille@gsi.ie
Tel: 01-678 2741
http://www.gsi.ie

26th November 2012

Re: Remedial Environmental Impact Assessment Scoping Document – Quarry at Shannapheasteen, Costello, Co. Galway.

Your Ref.: 120417

GSI Ref.: 12/115

Dear Ms Kennedy,

With reference to your letter of the 5th November 2012, concerning the above document and quarry; I would like to make the following comments on behalf of the Geological Survey of Ireland (GSI) in relation to chapter 4.2.5. "Table of Contents" for the remedial EIS:

6.3.2. Soils and Subsoils
6.3.3. Bedrock Geology
7.3.7. Hydrogeology
7.3.8. Groundwater Vulnerability
7.3.11. Water Resources
7.3.12. Receptor Sensitivity

Relevant datasets for the above are available for download and/or viewing on GSI website at www.gsi.ie/mapping.

6.3.4. Geological Resource Importance

GSI recently launched the "Aggregate Potential Mapping" viewer, which can be accessed at the above link and will inform this chapter.

6.3.5. Geological Heritage

No site of geological importance has been identified in our database within the perimeter of the quarry. The closest site of geological heritage interest lies at about 5km north of the quarry and is unlikely to be affected by the activity.

However the audit (survey) of County Geological Sites for Galway has yet to be carried out, so our data is incomplete for the county. When the audit will be phased, it is possible that features of interest might be identified within the perimeter of the quarry as the extractive industry provides exposures of bedrock that wouldn't normally be accessible. You are now familiar the guidelines produced by GSI and the ICF aimed at quarry owners on how to address geological heritage features when identified in their quarries, and GSI would very much appreciate access to the quarry when the audit will take place.

.../...

For future projects, please continue to contact either myself (sophie.preteseille@gsi.ie) or my colleague Sarah Gatley (sarah.gatley@gsi.ie) for information on geological heritage sites as data is not ready yet for release as a national dataset.

However, geological heritage data available so far can be downloaded at:
http://www.gsi.ie/Programmes/Heritage+and+Planning/County+Geological+Sites+Audits/

Other comments

At a later stage, GSI would much appreciate a copy of reports detailing any site investigations carried out. The data would be added to GSI's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector. Data can be sent to Beatriz Mozo (beatriz.mozo@gsi.ie, 01-678 2795).

I hope that these comments are of assistance, and if the GSI can be of any further help, please contact me.

Yours sincerely,

Sophie Préteseille, Geologist
Heritage and Planning Programme

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

ENVIRONMENTAL HEALTH OFFICERS SERVICE, GALWAY,
HEALTH SERVICE EXECUTIVE,
WEST CITY CENTRE,
SEAMUS QUIRKE ROAD,
GALWAY.

SEIRBHÍS NA N-OIFIGEACH SLÁINTE TIMPEALLACHTA,
Feidhmeannacht na Seirbhíse Sláinte,
Ionad Iarthar na Cathrach,
Bóthar Shéamuis Uí Chuirc,
Gaillimh.

☎ (091) 548352
(091) 529415

Our Ref: SM/ER **Your Ref:**

Ár dtag .: 120417 **Do thag.:**

21st November, 2012.

Ms. Noriana Kennedy, B.Sc.(Env.)
McCarthy Keville O'Sullivan Ltd.
Block 1,G.F.S.C
Moneenageisha Road,
Galway.

Copy/ Mr. Gavin Maguire,
Assistant National Director,
Enviromental Health,
Health Service Executive,
2nd Floor, Oak House,
Lime Tree Avenue,
Naas,
Co. Kildare.

Re: Remedial Environmental Impact Assessment Scoping Document – Quarry at Shannapheasteen, Costello, Co. Galway.

Dear Ms. Kennedy,

There are no additional comments to be made, over and above what is included in the scoping document.

I would recommend, however, that as part of the noise report that a daytime level and background nightime noise level is identified.

Yours sincerely,

Seamus Mitchell,
ENVIRONMENTAL HEALTH OFFICER.

An tÚdarás um Bóithre Náisiúnta
National Roads Authority

Teach Naomh Máirtín / Bóthar Waterloo / Baile Átha Cliath 4
St. Martin's House / Waterloo Road / Dublin 4
Teil: / Tel: + 353 1 660 2511 Facs: / Fax: + 353 1 668 0009

Ms Noriana Kennedy,
McCarthy Keville O' Sullivan Ltd.,
Block 1,
G.F.S.C.,
Moneenageisha Road,
Galway.

Dáta | Date	Ár dTag. | Our Ref.	Bhur dTag. | Your Ref.
9 November, 2012	**NRA- 86488**	**120417**

Re: Remedial Environmental Impact Assessment Scoping Document Quarry at Shannapheasteen, Costello, Co. Galway.

Dear Ms. Kennedy,

The Authority wishes to advise that it is not in a position to engage directly with planning applicants in respect to proposed developments. The Authority will endeavour to consider and respond to planning applications referred to it given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by the Authority in making such submissions or comments will seek to uphold official policy and guidelines as outlined in the Spatial Planning and National Roads Guidelines for Planning Authorities (DoECLG, 2012). Regard should also be had to other relevant guidance and circulars available at www.nra.ie.

The issuing of this correspondence is provided as best practice guidance only and does not prejudice the NRA's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid planning application referred.

With respect to EIS scoping issues, the recommendations indicated below provide only general guidance for the preparation of EIS, which may affect the National Roads Network.

The developer should have regard, *inter alia*, to the following;

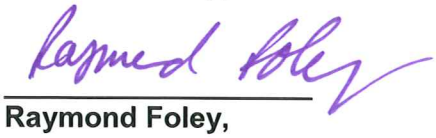
- Consultations should be had with the relevant Local Authority/National Roads Design Office with regard to locations of existing and future national road schemes,
- The Authority would be specifically concerned as to potential significant impacts the development would have on any national roads in the proximity of the proposed development,
- The developer should assess visual impacts from existing national roads,
- The developer should have regard to any Environmental Impact Statement and all conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area. The developer should in particular have regard to any potential cumulative impacts,
- The developer, in conducting Environmental Impact Assessment, should have regard to the NRA DMRB and the NRA Manual of Contract Documents for Road Works,

- The developer, in conducting Environmental Impact Assessment, should have regard to the NRA's Environmental Assessment and Construction Guidelines, including the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (National Roads Authority, 2006),
- The EIS should consider the Environmental Noise Regulations 2006 (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see *Guidelines for the Treatment of Noise and Vibration in National Road Schemes* (1st Rev., National Roads Authority, 2004)),
- It would be important that, where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment be carried out in accordance with relevant guidelines, noting traffic volumes attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads. The Authority's Traffic and Transport Assessment Guidelines (2007) should be referred to in this regard. The scheme promoter is also advised to have regard to Section 2.2 of the NRA TTA Guidelines which addresses requirements for sub-threshold TTA.
- The designers are asked to consult the National Roads Authority's DMRB *Road Safety Audit* (NRA HD 19/09) to determine whether a Road Safety Audit is required,
- In the interests of maintaining the safety and standard of the national road network, the EIS should identify the methods/techniques proposed for any works traversing/in proximity to the national road network.

Notwithstanding, any of the above, the developer should be aware that this list is non-exhaustive, thus site and development specific issues should be addressed in accordance with best practise.

I hope that the above comments are of use in your scoping process.

Yours sincerely,



Raymond Foley,
Programme & Regulatory Unit.

Appendix 2

Site Drawings

PROPOSED WORKS & MEASURES

NEW APPLICATION BOUNDARY OUTLINED IN RED

BOUNDARY OUTLINED IN RED
TOTAL AREA: 8.708 Hectares

N

Road Sign to indicate quarry ahead, sign erect approx 150m from quarry entrance.

120m Sight Lines to inner roadway verge.

Applicants Home House.

QUARRY SITE ENTRANCE

Site Notice erected on Existing Site Access Gate.

Photo 1-F Access Road Haul Road

RUNN-OFF INTERCEPTOR DRAIN

120m Sight Lines to inner roadway verge.

Photo 1-G Quarry Entrance

EXISTING STONE WALL WITH ERECTED GATE.

225mm DISCHARGE PIPE FROM QUARRY BOTTOM TO NORTHERN PART OF SITE VIA PUMP STATION, WATER NATURALLY FINDS ITS COURSE BACK TOWARDS QUARRY.

Access Gate.

Photo 1-E Water Discharge Pipe from quarry floor.

SAFETY BARRIER AROUND QUARRY

EXISTING RIVER FLOWING WEST

MAIN QUARRIED SECTION TO DATE HIGHLIGHTED.

EXISTING QUARRY FACE HIGHLIGHTED IN GREEN, SEE ATTACHED SITE SECTION FOR GREATER DETAIL.

SAFETY BARRIER AROUND QUARRY

EXISTING RIVER FLOWING WEST

Fencing 1.2m in height with a terram screening 0.6m in height following the perimeter of the Quarry Boundary. 2no fences

EXISTING RIVER FLOWING WEST

Photo 1-A Terram Fencing

Fencing 1.2m in height with a terram screening 0.6m in height following the perimeter of the Quarry Boundary.2 no fences

Existing Site Office(Portacabin)(See Supporting Photos)

Photo 1-C,D Site Office

Photo 1-B Work Area

Concrete Hardstand Area where the Stone cutting machinery is mounted.(See supporting Photos)

10m x 3m x 1m SILT TRAPS TO COLLECT ANY EXCESS SILT ARISING FROM THE POLISHED WATER BEING PUMPED FROM THE QUARRY.

225mm DISCHARGE PIPE

VEGATATION FILTER

RUNN-OFF INTERCEPTOR DRAIN

Fencing 1.2m in height with a terram screening 0.6m in height following the perimeter of the Quarry Boundary.2 no fences

SITE SECTION A - A

SITE SECTION B - B

DRAWING NOTES:

APPENDIX (1)

Photo 1-F Access Road Haul Road

Photo 1-G Quarry Entrance

DRAWING NOTES:

APPENDIX (1)

Photo 1-A Terram Fencing

Photo 1-B Work Area

Photo 1-C,D Site Office

Photo 1-C,D Site Office

Photo 1-E Water Discharge Pipe from quarry floor.

1. ALL STRUCTURAL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BONDED STRUCTURAL ENGINEERS DESIGN.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH 1997 BUILDING REGULATIONS AND ANY SUBSEQUENT REVISIONS THEREAFTER.
3. THIS DRAWING IS FOR PLANNING PERMISSION PURPOSES ONLY.
4. DO NOT SCALE FROM THIS DRAWING.
5. ALL DIMENSIONS TO BE CHECKED ON SITE.

SCALE: 1:500 A0	TITLE: Site Layout
DATE: 01.05.2013	DWG NO: 08-13 Dwg.
PREPARED BY: P O RAGHALLAIGH	CHECKED BY: P. O Raghallaigh

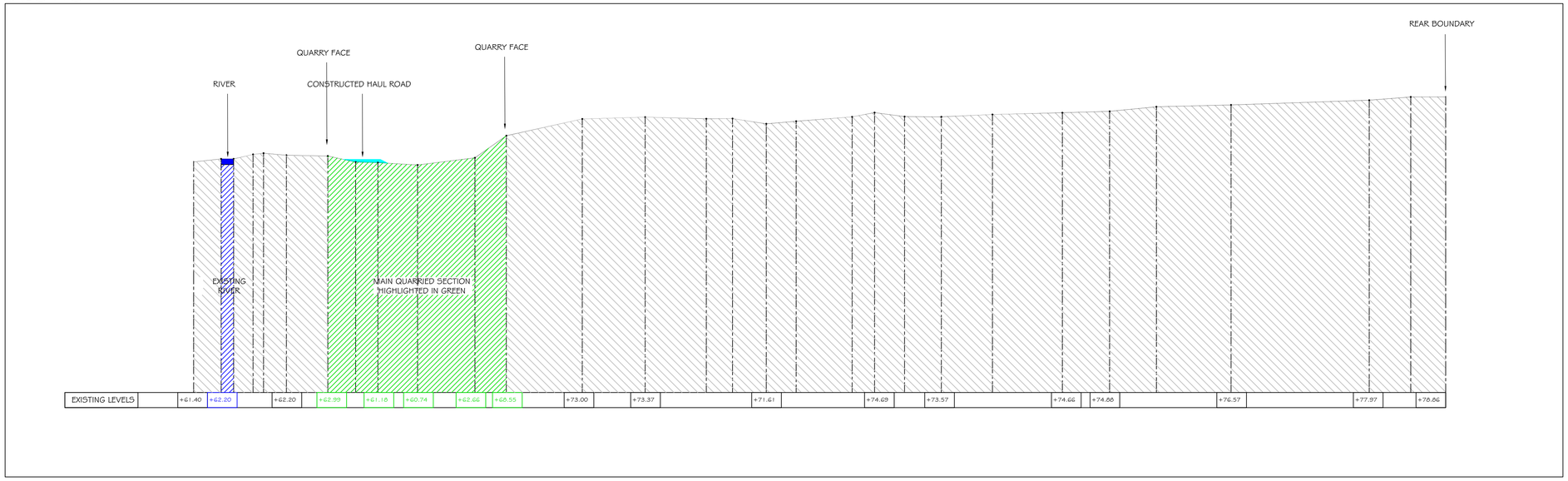
PROJECT:

QUARRY AT SHANNAPHEASTEEN REIA
APPLICANT MR. STIOFÁN Ó LORCÁIN

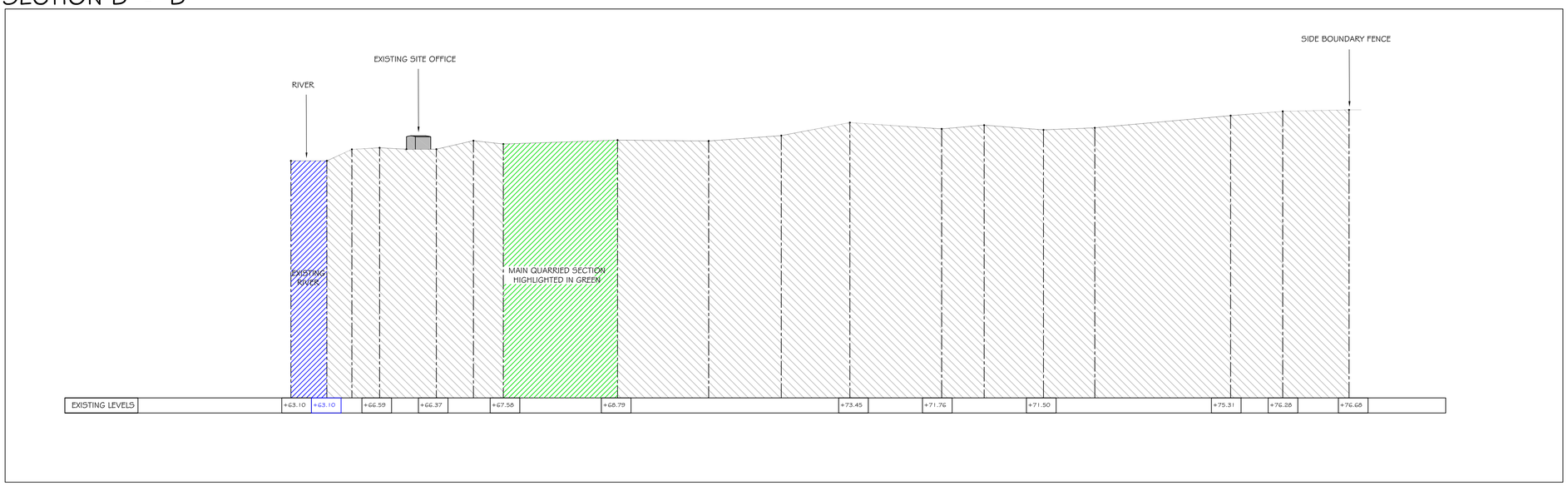
CLIENT: Stiofán Ó Lorcáin

PROFE
ARCHITECTURAL DESIGN & PLANNING CONSULTANTS
Baile Eamonn An Spidéal, Co na Gaillimhe
Tel. 087-6822347, Website: www.profedesigns.com
Email: info@profedesigns.com

SECTION A - A



SECTION B - B



PROPOSED WORKS & MEASURES

DRAWING NOTES:

1. ALL STRUCTURAL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BONDED STRUCTURAL ENGINEER'S DESIGN.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH 1997 BUILDING REGULATIONS AND ANY SUBSEQUENT REVISIONS THEREAFTER.
3. THIS DRAWING IS FOR PLANNING PERMISSION PURPOSES ONLY.
4. DO NOT SCALE FROM THIS DRAWING.
5. ALL DIMENSIONS TO BE CHECKED ON SITE.

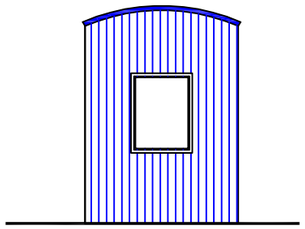
SCALE: 1:500 A0	TITLE: SITE LAYOUT
DATE: 01.05.2013	DWG NO: 08-13 0WG.
PREPARED BY: P. O RAGHALAIGH	CHECKED BY: P. O RAGHALLAIGH

PROJECT:

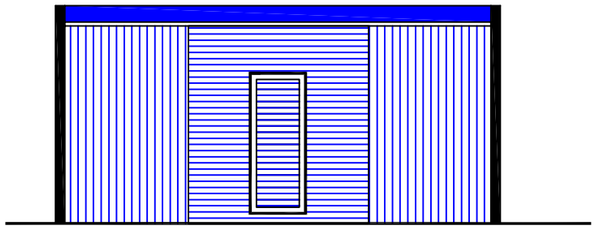
QUARRY AT SHANNAPHEASTEEN REIA
APPLICANT MR. STIOFÁN O LORCÁIN

CLIENT: STIOFÁN O LORCÁIN

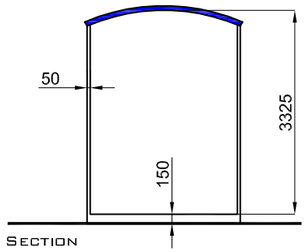
PROFE
ARCHITECTURAL DESIGN & PROJECT MANAGEMENT
PADRAIG O RAGHALLAIGH
BALE EAMONN AN SPIDEAL, CO NA GAILLIMHE
TEL: 087-6823147 WEBSITE: WWW.PROFESSIONS.COM
EMAIL: INFO@PROFESSIONS.COM



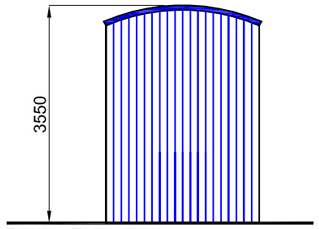
NORTH ELEVATION



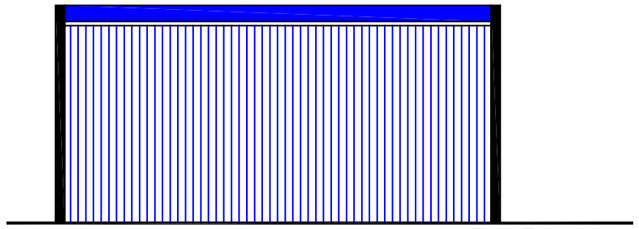
WEST ELEVATION



SECTION



SOUTH ELEVATION



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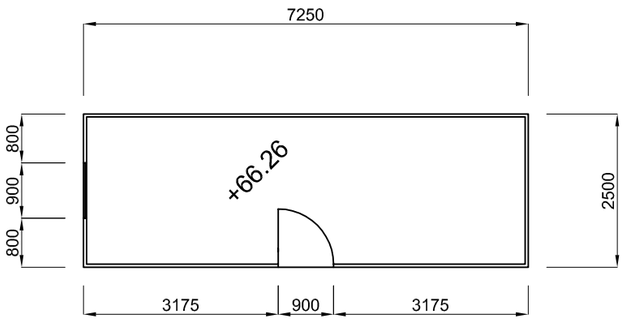

PLAN
AREA: 18.15m2

GENERAL NOTES:

1. ALL STRUCTURAL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BONDED STRUCTURAL ENGINEER'S DESIGN.
2. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH 1997 BUILDING REGULATIONS AND ANY SUBSEQUENT REVISIONS THEREAFTER.
3. THIS DRAWING IS FOR PLANNING PERMISSION PURPOSES ONLY.
4. DO NOT SCALE FROM THIS DRAWING.
5. ALL DIMENSIONS TO BE CHECKED ON SITE.

SCALE: 1:100 A3	TITLE: DRAWINGS
DATE: 05.05.2010	DWG NO: 13.10. DWG.
PREPARED BY: P. O RAGHALLAIGH	CHECKED BY: P. O RAGHALLAIGH

PROJECT:

QUARRY AT SHANNAPHEASTEEN REIA
APPLICANT MR. STIOFÁN O LORCÁIN

CLIENT: STIOFÁN O LORCÁIN

PROFE
ARCHITECTURAL DESIGN &
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Appendix 3

NPWS Site Synopses

SITE SYNOPSIS SITE NAME: CONNEMARA BOG COMPLEX SITE CODE: 002034 The Connemara Bog Complex is a large site encompassing the majority of the south Connemara lowlands, Co. Galway. The site is bounded to the north by the Galway- Clifden road and stretches as far east as the Moycullen-Spiddal road.

Because of its large size the site contains a wide range of habitats. Extensive tracts of western blanket bog form the core interest, but there are also areas of heath, woodland, lakes, rivers and streams. The Connemara Bog Complex is underlain predominantly by various Galway granites, with small areas along the northern boundary of Lakes Marble, schist and gneiss.

The Roundstone bog area has a diverse bedrock geology composed mainly of the basic intrusive rock, gabbro. An area of rock, possibly Cambrian in age, called the Delaney Dome Formation occurs in the north-west of this area. Gabbro also occurs in the Kilkieran peninsula and near Cashel. The whole area was glaciated in the last Ice Age which scoured the lowlands of Connemara. The site is a candidate SAC selected for active blanket bog and lagoons, both priority habitats on Annex I of the E.U. Habitats Directive.

The site is also selected as a candidate SAC for floating river vegetation, wet and dry heath, alkaline fen, transition mires, lowland oligotrophic lakes, dystrophic lakes, Rhynchosporion, old Oak woodlands, *Molinia* meadows and reefs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Atlantic Salmon, Otter, the plant Slender Naiad and the Marsh Fritillary butterfly. The main habitat within this site is lowland Atlantic blanket bog. Most of the area is covered by blanket peat greater than one metre in depth.

The Connemara Bog Complex is characterized by areas of deeper peat surrounded by rocky granite outcrops, covered by heath vegetation. The deeper peat areas are often covered by lakes and river systems. A mosaic of different communities therefore exists. These include, hummock/hollow systems, inter-connecting pools, Atlantic blanket bog pools, flushes, transition and quaking mires, freshwater marshes, lakeshore, lake and river systems. The key plant species of lowland blanket bog are Black Bog-rush (*Schoenus nigricans*), Purple Moor-grass (*Molinia caerulea*), Cross-leaved Heath (*Erica tetralix*), Deergrass (*Scirpus cespitosus*), Common Cottongrass (*Eriophorum angustifolium*), Bog Asphodel (*Narthecium ossifragum*), White Beak-sedge (*Rhynchospora alba*) and Bog Moss (*Sphagnum*) species. Small patches of deciduous woodland and a large number of oligotrophic lakes add to the habitat diversity of the site.

Also occurring within the site are several lagoons (a type of brackish lake) which display considerable variations in size, depth and salinity, resulting in a diverse assemblage of floral and faunal communities. Nine legally protected plant species occur within this site (Flora (Protection) Order, 1999): Forked Spleenwort (*Asplenium septentrionale*), Parsley Fern (*Cryptogramma crispa*), Bog Hair-grass (*Deschampsia setacea*), Slender Cottongrass (*Eriophorum gracile*), Bog Orchid (*Hammarbya paludosa*), Slender Naiad (*Najas flexilis*), Heath Cudweed (*Omalotheca sylvatica*), Pillwort (*Pilularia globulifera*) and Pale Dog-violet (*Viola lactea*). The rare and threatened species, Dorset Heath (*Erica ciliaris*), Mackay's Heath (*Erica mackaiana*) and Green-winged Orchid (*Orchis morio*) also occur within this site. All the above species are listed in the Irish Red Data Book and Slender Naiad is listed on Annex II of the EU Habitats Directive.

The site is of national importance for wintering populations of Greenland Whitefronted Geese. Small flocks (up to 30) are nowadays found on Roundstone Bog and also use the bogs between Recess and Maam Cross. In April 1989 a synchronised ground and air census of the Connemara bogs located 7 flocks of White-fronts, totalling 134-137 birds. In 1991/93 wintering numbers were considered to be not much more than 60 birds. There is an internationally important breeding area for Cormorants at Lough Scannive with 218 pairs present in 1985 in a colony which is known to have existed pre-1968. Golden Plover, a species listed on Annex I of the EU Birds Directive, nests at up to four locations in the site, with a maximum of two pairs noted at any one location. Another Annex I species known to be present in the site is Merlin. Lough Naskanniva is an important inland breeding site for

Common Terns (up to 60 pairs in 1977 and 1992) and Choughs, both of which are also Annex I species under the EU Birds Directive.
Atlantic Salmon, listed under Annex II of the E.U. Habitats Directive occurs in many of the rivers within the site. The Cashla and Ballynahinch systems are good examples of western acidic spate rivers which support the species. Good spawning and nursery grounds for the species occur in these systems. Arctic Charr occurs in a number of lakes within the site: Ballynahinch Lake, Glenicmurrin Lough and Lough Shindilla. The species has also been reported from Lough Oorid and Lough Glendollagh in the past, but has not been recorded from these lakes in recent years. Arctic Charr is listed in the Irish Red Data Book as being threatened. Otter has been recorded as occurring in the Connemara Bog Complex. Irish Hare, another mammal listed in the Red Data Book, occurs on the site. Common Frog breeds on the site. It is listed in the Irish Red Data Book as internationally important and on Annex V of the EU Habitats Directive.
The main damaging operations and threats in the Connemara Bog Complex are peatcutting, overgrazing and afforestation. Extensive peat extraction using 'Difco' machines has become common in the region in recent years and cutting by excavator and hopper is also increasing. The handcutting of peat is less threatening as it is usually on a much smaller scale but it still needs to be controlled within the site. Afforestation also threatens the site. Forestry affects habitat uniformity, lake and river catchments, nesting and feeding habitats for animals, and landscape integrity. Overgrazing and poaching by sheep and cattle is a widespread problem within the site, with erosion of peat ensuing. The above operations are the most extensive but other threats and potentially damaging operations include land drainage and reclamation, fertilization, quarrying and dumping.

In summary, the Connemara Bog Complex encompasses a large area of relatively undamaged lowland Atlantic blanket bog of high conservation significance to Ireland as well as Europe. The site has nine protected and threatened Irish Red Data Book plant species. The site is internationally important for Cormorants and nationally important for Greenland White-fronted Geese and contains nesting sites for Golden Plover. The site supports several bird species listed on Annex I of the EU Birds Directive and a range of plant and animal species listed on Annex II of the EU Habitats Directive. 13.12.2005

SITE SYNOPSIS SITE NAME: CONNEMARA BOG COMPLEX SPA SITE CODE: 004181 The Connemara Bog Complex SPA is a large site encompassing much of the south Connemara lowlands of Co. Galway. The site consists of three separate areas - north of Roundstone, south of Recess and north-west of Spiddal. It is underlain predominantly by a variety of igneous and metamorphic rocks including granite, schist, gneiss and gabbro. The whole area was glaciated during the last Ice Age which scoured the lowlands of Connemara. The Connemara Bog Complex SPA is characterized by areas of deep peat surrounded by heath-covered rocky outcrops. The deeper peat areas are often bordered by river systems and the many oligotrophic lakes that occur, resulting in an intricate mosaic of various peatland/wetland habitats and vegetation communities; these include Atlantic blanket bog with hummock/hollow systems, inter-connecting pools, Atlantic blanket bog pools, flushes, transition and quaking mires, as well as freshwater marshes, lakeshore, lake and river systems. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Cormorant, Merlin, Golden Plover and Common Gull. Lough Scannive, located within Roundstone Bog, supports a nationally important breeding population of Cormorant (160 breeding pairs in 2001). Other breeding birds using the site include Merlin and Golden Plover. A partial survey in 2009 recorded 8 pairs of Merlin at various locations throughout the site; 15 breeding locations for this species were recorded at the site in an earlier survey undertaken in 1985/86. A survey of upland birds in 2004 recorded 27 pairs of Golden Plover within the site. The numerous lakes scattered throughout the site provide suitable breeding locations for Common Gull (45 pairs in 2000); a survey in 2010 recorded 40 pairs of this species at the site. The site is also utilised by a wintering population of Greenland White-fronted Goose; small flocks of up to 30 birds have been recorded at various locations within the site. Connemara Bog Complex SPA is of high ornithological importance, in particular for its nationally important breeding populations of Cormorant, Merlin, Golden Plover and Common Gull. It is of note that three of the regularly occurring species, Greenland White-fronted Goose, Merlin and Golden Plover, are listed on Annex I of the E.U. Birds Directive. 30.11.2010

SITE SYNOPSIS SITE NAME: MAUMTURK MOUNTAINS SITE CODE: 002008 The Maumturk Mountains are situated east of The Twelve Bens and west of the Maumtrasnas, between the Inagh Valley and the Leenaun/Maam road. The site is bounded to the north by Killary Harbour and to the south by the Galway/ Clifden road. Most of the mountains exceed 600 m in height and about half of the land within the site lies above an altitude of 250 m. In addition many rivers criss-cross the site. The main bedrock is quartzite in the south, which forms impressive cliffs but little mineral soil, and shales and slates in the northern area, which weather more easily. Bands of metamorphosed limestone (Lakes Marble Formation) occur at Lissoughter, Maumeen Gap at Knocknagur and Maamturkmore. The site is a candidate SAC selected for blanket bog, a priority habitat on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for lowland oligotrophic lakes, alpine heath, siliceous rocky vegetation and Rhynchosporion, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Slender Naiad and Atlantic Salmon. Wet heath is widespread within the site on the margins of areas of blanket bog and on the lower slopes of mountains where peat depth is less than about 1 metre. The vegetation is typically dominated by Purple Moor-grass (*Molinia caerulea*), with Cross-leaved Heath *(Erica tetralix)* and Heather (*Calluna vulgaris*) locally subdominant. Other frequent species include Tormentil (*Potentilla erecta*), Heath Milkwort (*Polygala serpyllifolia*), Many-stalked Spike-rush (*Eleocharis multicaulis*), Bog Asphodel (*Narthecium ossifragum*) and the sedges *Carex echinata* and *C. panicea*. On drier, more steep slopes, dry heath is present with Bell Heather (*Erica cinerea*) a typical species. Overgrazing by sheep has greatly modified the structure and composition of the heath communities, with a reduction in Heather cover and in places the initiation of soil erosion. Blanket bog also occurs within this site, some of which is intact and of good quality, with a particularly good example at Caher. Typical bog species are found, including Heather, Purple Moor-grass, Black Bog-rush *(Schoenus nigricans),* Bog Asphodel, Cross-leaved Heath, Bog Cotton *(Eriophorum angustifolium*), Carnation Sedge *(Carex panicea),* the moss *Racomitrium lanuginosum* and locally frequent hummocks of the bog mosses *Sphagnum fuscum* and *S. imbricatum*. In addition, the lichen flora is locally luxuriant and includes the rare *Cladonia rangiferina.* Flushes occur in some areas of the bog, such as on the south slope of Knocknagur. Here, species such as Pondweed (*Potamogeton polygonifolius),* Bulbous Rush *(Juncus bulbosus),* Jointed Rush *(Juncus articulatus),* Spike Rush *(Eleocharis multicaulis)* and various sedges *(Carex panicea, C. demissa, C. hostiana)* are found. At this location, the scarce Brown Beak-sedge (*Rhynchospora fusca)* is common in the surrounding bog. Rhynchosporion vegetation is associated with the blanket bog in a few areas of the site. It is characterised by well devoloped inter-connecting pool systems with quaking carpets of *Sphagnum*. The pool areas are typically dominated by *Sphagnum cuspidatum* and *S. auriculatum*, with Bog Cotton, Bogbean (*Menyanthes trifoliata*), and Sundews (*Drosera anglica* and *D. intermedia*). The quaking flat areas are dominated by White-beaked Sedge (*Rhynchospora alba*), Bog Asphodel and Bog Cotton. Oligotrophic lakes are well represented in this site, occurring mainly to the southeastern sector of site near Maam Cross. The principal lakes are Lough Shindilla, Loughanillaun, Lough Nambrackboy, Lough Shannagrena, Maumwee Lough and Lehanagh Lough. Most of these are small to medium sized systems and are of good quality. Typical oligotrophic aquatic species occur, including Quillwort (*Isoetes lacustris),* Pipewort *(Eriocaulon aquaticum),* Water Lobelia *(Lobelia dortmanna),* Shoreweed *(Littorella uniflora)* and Water Milfoil *(Myriophyllum alterniflorum).* Spawning salmon and trout occur in at least Maumwee Lough. Other habitats present include lowland blanket bog, siliceous quartzite scree, exposed rock, upland grassland on peaty and mineral substrates, river valleys and streams, lakes, and woodland on lake islands. In areas where base-rich rocks occur at altitude, e.g. Maumeen Gap and Lissoughter, scarce plant species such as Mountain Avens (*Dryas octopetala*) and Alpine Meadow-rue (*Thalictrum alpinum*) and the Red Data Book species, Purple Saxifrage (*Saxifraga oppositifolia*), are found. The site supports a range of other scarce arcticalpine/ mountain plants, including Green Spleenwort (*Asplenium viride*), Brittle Bladder-fern (*Cystopteris fragilis*), Holly Fern (*Polystichum lonchitis*), Beech Fern

(*Phegopteris connectilis*), Starry Saxifrage (*Saxifraga stellaris*), Roseroot (*Rhodiola rosea*), Cowberry (*Vaccinium vitis- idaea*), Mountain Sorrel (*Oxyria digyna*), Dwarf Willow (*Salix herbacea*), Lesser Twayblade (*Listera cordata*), Stiff Sedge (*Carex bigelowii*) and Juniper (*Juniperus communis*). Several other Red Data Book plant species are also found on the site: Slender Cottongrass (*Eriophorum gracile*) and Slender Naiad (*Najas flexilis*) occur in single locations. There is an old record from near Maam Cross for Wood Bitter-vetch (*Vicia orobus*), but this has not been seen on the site in recent years. All of these species are legally protected (Flora Protection Order, 1999) and Slender Naiad is also listed on Annex II of the EU Habitats Directive. The threatened, Marsh Clubmoss (*Lycopodiella inundata*) also occurs within the site. The site is very important for salmon, a species listed on Annex II of the EU Habitats Directive. The rivers and lakes, and especially the Bealnabrack system, provide high quality spawning and nursery rivers. Arctic Charr has been recorded in Derryneen Lough and Lough Shindilla. However, only in Lough Shindilla are there recent records for this species. This fish species is listed in the Irish Red Data Book as being threatened in Ireland. The Irish Hare has been recorded from the site and is probably widespread; this endemic subspecies is also listed in the Red Data Book as being threatened. Common Frog, also a Red Data Book species, breeds on the site. Birdlife on the site includes Dipper, Heron, Kestrel, Meadow Pipit, Raven, Snipe, Stonechat, Wheatear and Woodcock. Peregrine, a species listed on Annex I of the EU Birds Directive, occurs within the site. The main damaging activities and threats to the Maumturk Mountains are overgrazing, peat-cutting and afforestation. Grazing, in particular by sheep, is widespread and quite severe within the site. This has resulted in the erosion of both lowland and mountain blanket bog and in the modification and destruction of heath communities, particularly in the southern half of the site. Peat- cutting, both by hand and by machine, has become more of a problem in recent years but is largely confined to areas of deep, lowland blanket bog. The above activities are the most extensive but other threats and potentially damaging activities include land drainage and reclamation, fertilization, quarrying and dumping. This site is of interest as it is a good example of an extensive mountain landscape, containing blanket bog, large areas of heath, siliceous rocky vegetation, oligotrophic lakes and upland grassland. The areas of blanket bog at Teernakill and Caher are largely unaffected by overgrazing and are in very good condition. The presence of rare and protected plant species and of the scarce Arctic Charr adds to the interest of the site.
6.10.2006

SITE SYNOPSIS SITE NAME : LOUGH CORRIB SITE CODE : 000297 Lough Corrib is situated to the north of Galway city and is the second largest lake in Ireland with an area of approximately 18,240 ha (the entire site is 20,556 ha). The lake can be divided into two parts: a relatively shallow basin, underlain by Carboniferous limestone, in the south and a larger, deeper basin, underlain by more acidic granite, schists, shales and sandstones, to the north. The surrounding lands are mostly pastoral farmland, to the south and east, and bog and heath, to the west and north. Rivers, mainly to the east of the site are included within the cSAC as they are important for Atlantic Salmon. These rivers include the Clare, Grange, Abbert, Sinking, Dalgan and Black to the east, as well as the Cong, Bealanabrack, Failmore, Cornamona, Drimneen and Owenriff to the west. In addition to the rivers and lake basin, adjoining areas of conservation interest, including raised bog, woodland, grassland and limestone pavement, have been incorporated into the site. This site is of major conservation importance and includes 14 habitats listed on Annex I of the E.U. Habitats Directive. Six of these are priority habitats - petrifying springs, *Cladium* fen, active raised bog, limestone pavement, bog woodland and orchid-rich calcareous grassland. The other annexed habitats present include hard water lakes, lowland oligotrophic lakes, floating river vegetation, alkaline fens, degraded raised bogs, Rhynchosporion vegetation, *Molinia* meadows and old Oak woodlands. Species present on the site that are listed on Annex II of this directive are Sea Lamprey, Brook Lamprey, Atlantic Salmon, White-clawed Crayfish, Freshwater Pearl Mussel, Otter, Lesser Horseshoe Bat, Slender Naiad and the moss *Drepanocladus vernicosus*. The shallow, lime-rich waters of the southern basin the of lake support one of the most extensive beds of Stoneworts (Charophytes) in Ireland, with species such as *Chara aspera*, *C. hispida*, *C. delicatula*, *C. contraria* and *C. desmacantha* mixed with submerged Pondweeds (*Potamogeton perfoliatus*, *P. gramineus* and *P. lucens*), Shoreweed (*Littorella uniflora*) and Water Lobelia (*Lobelia dortmanna*). These *Chara* beds are an important source of food for waterfowl. In contrast, the northern basin contains more oligotrophic and acidic waters, without *Chara* species, but with Shoreweed, Water Lobelia, Pipewort (*Eriocaulon septangulare*), Quillwort (*Isoetes lacustris*), Alternate Water-milfoil (*Myriophyllum alternifolium*) and Slender Naiad (*Najas flexilis*). The last-named is listed under the Flora (Protection) Order, 1999 and is an Annex II species under the EU Habitats Directive. Large areas of reedswamp vegetation, dominated by varying mixtures of Common Reed (*Phragmites australis*) and Common Club-rush (*Scirpus lacustris*), occur around the margins of the lake. Reedswamp usually grades into species-rich marsh vegetation characterised by Slender Sedge (*Carex lasiocarpa*), Water Mint (*Mentha aquatica*), Water Horsetail (*Equisetum fluviatile*) and Bog Bean (*Menyanthes trifoliata*). Of particular note are the extensive beds of Great Fen-sedge (*Cladium mariscus*) that have developed over the marly peat deposits in sheltered bays, particularly in the south-east corner of the lake. Alkaline fen vegetation is more widespread around the lake margins and includes, amongst the typically diverse range of plants, the Slender Cottongrass (*Eriophorum gracile*), a species protected under the Flora (Protection) Order, 1999. Wet meadows dominated by Purple Moor-grass (*Molinia caerulea*) occur in seasonally flooded areas close to the lake shore. These support species such as Sharp-flowered Rush (*Juncus acutiflorus*), Jointed Rush (*J. articulatus*), Carnation Sedge (*Carex panicea*), Devil's-bit Scabious (*Succisa pratensis*), Creeping Bent (*Agrostis stolonifera*) and Tormentil (*Potentilla erecta*), amongst others. This large site contains four discrete raised bog areas and is selected for active raised bog, degraded raised bog, Rhynchosporion and bog woodland. Active raised bog comprises areas of high bog that are wet and actively peat-forming, where the percentage cover of bog mosses (*Sphagnum* spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, *Sphagnum* lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (*Rhynchospora alba*) and/or Brown Beak-sedge (*R. fusca*), and at least some of the following associated species, Bog Asphodel (*Narthecium ossifragum*), Sundews (*Drosera* spp.), Deergrass (*Scirpus*

cespitosus) and Carnation Sedge (*Carex panicea*). At Addergoole, on the eastern shores of Lough Corrib, there is an important area of western raised bog. This bog area is one of the most westerly, relatively intact raised bogs in the country. There are also other substantial areas of raised bog along various tributaries of the Corrib in east Co. Galway, namely Slieve Bog, Lough Tee Bog and Killaclogher bog. The active parts of these bogs mostly correspond to the wettest areas, where there are well developed surface features with hummocks, lawns and pools. It is in such areas that Rhynchosporian vegetation is best represented. The dominant species is the aquatic bog moss *Sphagnum cuspidatum,* which is usually accompanied by Bogbean (*Menyanthes trifoliata),* White Beak-sedge*,* Bog Asphodel*,* Bog Cotton *(Eriophorum angustifolium)*, Bog Sedge (*Carex limosa)* and Great Sundew (*Drosera anglica)*. Brown Beak-sedge, a locally rare plant of wet bog pools, has been recorded from a number of the bog areas within the site. At Addergoole a substantial bog lake or soak occurs and this is infilling with large rafts of Rhynchosporion vegetation at present. This area is associated with an important area of wet bog woodland dominated by Downy Birch (*Betula pubescens*). The largest part of the uncut high bog comprises degraded raised bog. Degraded bog is dominated by a raised bog flora which tends to be rather species-poor because of disturbance and/or drying-out. The most conspicuous vascular plant species are usually Carnation Sedge (*Carex panicea*), Heather (*Calluna vulgaris*), Bog Cotton*,* Cross-leaved Heath (*Erica tetralix*), Bog Asphodel and Deergrass. Bog Rosemary (*Andromeda polifolia*) and Cranberry (*Vaccinium oxycoccos*), two species indicative of raised bog habitat, are frequent on both degraded and active areas of raised bog. *Sphagnum* cover is generally low within degraded areas due to a combination of drying-out and frequent burning. Limestone pavement occurs along much of the shoreline in the lower Corrib basin and supports a rich and diverse flora, including Herb-robert (*Geranium robertianum*), Bloody Crane's-bill (*G. sanguineum*), Carline Thistle (*Carlina vulgaris*), Spring Gentian (*Gentiana verna*), Wild Thyme (*Thymus praecox*), Rustyback (*Ceterach officinarum*), Wood Sage (*Teucrium scorodonia*), Slender St. John's-wort (*Hypericum pulchrum*), Quaking-grass (*Briza media*) and Blue Moor-grass (*Sesleria albicans*). Areas of Hazel (*Corylus avellana*) scrub occur in association with exposed limestone pavement and these include species such as Hawthorn (*Crataegus monogyna*), Buckthorn (*Rhamnus catharticus*), Spindle (*Euonymus europaeus*) with occasional Juniper (*Juniperus communis*). Three Red Data Book species are also found in association with limestone scrub - Alder Buckthorn (*Frangula alnus*), Shrubby Cinquefoil (*Potentilla fruticosa*) and Wood Bitter-vetch (*Vicia orobus*), the latter is also protected under the Flora (Protection) Order, 1999. Open areas of orchid-rich calcareous grassland are also found in association with the limestone exposures. These can support a typically rich vegetation, including many orchids such as Pyramidal Orchid (*Anacamptis pyramidalis*), Common Spotted-orchid (*Dactylorhiza fuchsii*), Early-purple Orchid (*Orchis mascula*), Frog Orchid (*Coeloglossum viride*), Fragrant Orchid (*Gymnadenia conopsea*), Marsh Helleborine (*Epipactis palustris*), Greater Butterfly-orchid (*Platanthera chlorantha*) and Irish Lady'stresses (*Spiranthes romanzoffiana*). The latter is protected under the Flora (Protection) Order, 1999. The Hill of Doon, located in the north-western corner of the lake, is a fine example of a Sessile Oak (*Quercus petraea*) woodland. The understorey is dominated by Sessile Oak, Holly (*Ilex aquifolium*) and occasional Juniper. There are occasional Yew (*Taxus baccata*) and Ash (*Fraxinus excelsior*) and a well developed ground layer dominated by Bilberry (*Vaccinium myrtillus*), Hard Fern (*Blechnum spicant*) and Wood Rush (*Luzula sylvatica*). Woodland also occurs on some of the islands in the lake. The lake is rated as an internationally important site for waterfowl. Counts from 1984 to 1987 revealed a mean annual peak total of 19,994 birds. In the past a maximum peak of 38,281 birds was recorded. The lake supports internationally important numbers of Pochard (average peak 8,600) and nationally important numbers of the following species: Coot (average peak 6,756), Mute Swan (average peak 176), Tufted Duck (average peak 1,317), Cormorant (average peak 110) and Greenland White-fronted Goose (average peak 83). The latter species is listed on Annex I of Birds Directive. The Coot population is the largest in the country and populations of Tufted Duck and Pochard are second only to Lough Neagh. 30-41 breeding pairs of Common Scoter

occur on the lake (1995 data) as well as breeding populations of Arctic Tern and Common Tern. Other bird species of note recorded from or close to the lake recently include Hen Harrier, Whooper Swan, Golden Plover and Kingfisher. All of these species are listed on Annex I of the E.U. Birds Directive. Otter and Irish Hare have been recorded regularly within this site. Both of these species are listed in the Red Data Book and are legally protected by the Wildlife Act 1976. Otter is also listed on Annex II of the E.U. Habitats Directive. Lough Corrib is considered one of the best sites in the country for otter, due to the sheer size of the lake and associated rivers and streams and also the generally high quality of the habitats. Atlantic Salmon (*Salmo salar*) use the lake and rivers as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the E.U. Habitats Directive. Lough Corrib is also a well known fishing lake with a very good Trout (*Salmo trutta*) fishery. The lake has a population of Sea Lamprey (*Petromyzon marinus*), a scarce, though probably under-recorded species listed on Annex II of the E.U. Habitats Directive. A population of Freshwater Pearl-mussel (*Margaritifera margaritifera*), a species listed on Annex II of the E.U. Habitats Directive, occurs within the site. White-clawed Crayfish (*Austropotamobius pallipes*), also listed on Annex II, is well distributed throughout Lough Corrib and its in-flowing rivers over limestone. A summer roost of Lesser Horseshoe Bat (*Rhinolophus hipposideros*), another Annex II species, occurs within the site - approximately 100 animals were recorded here in 1999. The main threats to the quality of this site are from water polluting activities resulting from intensification of agricultural activities on the eastern side of the lake, uncontrolled discharge of sewage which is causing localised eutrophication of the lake, and housing and boating development, which is causing the loss of native lakeshore vegetation. The raised bog habitats are susceptible to further degradation and drying out due to drainage and peat cutting and, on occasions, burning. Peat cutting threatens Addergoole Bog and already a substantial area of it has been cut away. Fishing and shooting occur in and around the lake. Introduction of exotic crayfish species or the crayfish fungal plague (*Aphanomyces astaci*) could have a serious impact on the native crayfish population. The bat roost is susceptible to disturbance or development. Despite this ongoing interference however, Lough Corrib is one the best examples of a large lacustrine catchment system in Ireland, with a range of habitats and species still well represented. The lake itself is internationally important for birds and is designated as a Special Protection Area. 6.10.2006

SITE SYNOPSIS SITE NAME: KILKIERAN BAY AND ISLANDS SITE CODE: 002111 Kilkieran Bay and Islands is located just north of Galway Bay and extends from Keeraun Point, south of Carraroe, westwards to Mace Head, west of Carna. The site contains a large area of open marine water, many islands and rocky islets, and the coastline is much indented with a series of bays (notably the inter-connected Kilkieran Bay and Greatman's Bay), channels and inlets. The entrances of the bays face the prevailing south-westerly winds and they are subject to strong tidal streams as the sea funnels between islands and through channels. A number of streams, lakes and lagoons drain into the bays. The bedrock of the site is igneous, composed of granite, felsite and other intrusive rocks rich in silica. Generally, the site has a rocky shoreline which in most places gives way to mud in shallow water. The surrounding land is dominated by lowland blanket bog, with rock outcrops and small hills to the north. The marine habitats found within Kilkieran Bay and Greatman's Bay are of very high conservation value. Both bays have a very wide variety of habitats and Kilkieran Bay a very high species diversity (only Kenmare River is more diverse than Kilkieran Bay). A very high number of species that are rare or considered to be worthy of conservation in Ireland occur in the area. Communities of particular importance are the extensive and varied beds of free-living red calcareous algae or maerl (which may be known locally as 'coral'). Kilkieran Bay is one of three known localities in Ireland where the maerl species *Lithothamnion corallioides*, *Lithophyllum dentatum* and *Lithothamnion fasciculatum* co-occur. The range of maerl deposits in Kilkieran Bay, including banks of maerl debris, live maerl and mixtures of maerl, gravel and mud gives rise to a variety of communities. Within these communities are a number of rare anemones, i.e. *Scolanthus callimorphus, Mesacmaea mitchellii* and *Aureliania heterocera*. The last-named species is rare in Ireland, being known only from Donegal Bay and Kilkieran Bay, as well as a number of areas on the north-east coast; the population in the site is the largest on the west coast. Kilkieran Bay is the only known Irish locality for *Mesacmaea mitchellii*. *Scolanthus callimorphus* is known only from Kilkieran Bay, Valencia Harbour, Co. Kerry and the Dorset coast in the U.K. The best recorded example of the community characterised by the sea cucumber *Neopentadactyla mixta* occurs in the banks of dead maerl of Kilkieran Bay. The very rare anemone *Halcampoides elongatus,* known only from Kilkeran Bay and Ards Bay in Ireland, occurs in a narrow bed of clean dead maerl at the edges of some of the live maerl beds. Greatman's Bay, like Kilkieran Bay, has extensive maerl beds. A population of the large burrowing anemone *Pachycerianthus multiplicatus* occurs at two muddy sites within Kilkieran Bay and is known from only three other localities in Ireland. The seagrass *Zostera marina* occurs in a number of areas in Kilkieran Bay and in some areas co-occurs with maerl. This association is known from a number of areas in Ireland but has not been recorded in the U.K. Beds of the native oyster *Ostrea edulis* occur in Inner Kilkieran Bay. The outer part of the site has sandy bays, e.g. Mweenish Bay, which supports populations of polychaetes, burrowing anemones and bivalves. Sheltered shores have a variety of communities down the shore - the low shore is very species-rich and supports a variety of polychaetes and bivalves. The rocky shores of the site are comprised of bedrock or a mixture of bedrock, boulders and gravel; they support a very wide variety of shore communities, with the zonation being typical of shores that range from being exposed to wave action through to extremely sheltered shores and some tide-swept shores. Shores exposed to wave action have a zonation of channel wrack *Pelvetia canaliculata* and barnacles in the upper shore, bladder wrack *Fucus vesiculosus* and barnacles in the mid shore, serrated wrack *Fucus serratus* in the low shore and the kelp *Laminaria hyperborea* on the very low shore. Sheltered shores have the mid shore dominated by knotted wrack *Ascophyllum nodosum*. In the inner part of both bays the brown alga *Ascophyllum nodosum* var. *mackii*, which has very specific habitat requirements, is found. The rapids at Carrickaglegaun Bridge, Lettermore Island, are extremely species-rich (119 species recorded) and includes the rarely-recorded star fish *Asterina phylactica*. This was the highest number of species recorded on any shore in a recent Irish survey. The inner parts of Kilkieran Bay have channels to several extensive lagoons. Mixed kelp forests of *Laminaria hyperborea* and *Laminaria saccharina* frequently form a canopy in the very sheltered areas. In

contrast, in exposed situations there are extensive areas of *Laminaria hyperborea*, in particular to the south of Golam Head. The rare alga *Dermocorymus montagnei* is known only from the very sheltered narrow inlet Coill Saile on the northern shore of Kilkieran Bay and a handful of sites in Brittany. Also in this creek are large plants of the maerl species *Phymatolithon polymorphum* on which the rare, creeping red alga *Gelidiella calcicola* and the recently described *Gelidium maggsiae* occur. The creek is also unusual for its large population of the red alga *Meredithia microphylla*, which is more characteristic of exposed areas, and for the large form of the sea slug *Akera bullata* var. *farrani* (which may be a separate species). In Kilkieran Bay, on subtidal reefs dominated by animals, the sponge/sea squirt community of *Raspailia ramosa* and *Corella parallelogramma* is widespread; the best examples in Ireland of this community occur in Gurraig Sound within the site, where a high diversity of encrusting and branching sponges and ascidians are found. The rare sponges *Plakortis simplex* and *Tricheurypon viride* are found in this community. In more exposed situations such as the Namackan Rocks there are good examples of the Axinellid sponge community with the sea fan *Eunicella verrucosa*. The sponge *Axinella damicornis* occurs here and although it is found at ten locations on the west coast it is never abundant. *Phakellia vermiculata,* a deep-water species, has been recorded in shallow water at only a limited number of locations on the south-west and west coasts of Ireland. The site is extremely important for the number of lagoons that it includes - it is considered to be the best site in the country for this habitat and is an excellent example of a particularly unusual type of saling lake lagoon situated on peat, which appear to be rare on Europe but characteristic of south Connemara. Examples of lagoons in the site include Lettermullen Pool, Lough Tanai, Mill Lough, Carafinla Lough, the Lough Fhada complex and Loch an Aibhnín. Lettermullen lagoon is a particularly good example of a rock lagoon lying on granite. This habitat is one that is listed on Annex I of the E.U. Habitats Directive with priority status. Areas of salt marsh occur frequently throughout the site - a thin fringe salt marsh is found along most stretches of coastline. The habitat occurs most frequently in the many sheltered bays in the eastern half of the site and has developed in the lee of causeways built to connect islands, e.g. Gorumna Island, to the mainland. The area of salt marsh between Costelloe and Kinvara is particularly well-developed and extensive. The salt marshes in the site are of the fringe type and most occur on peat - the large number of discrete areas of the habitat within the site suggests that it contains the largest area of salt marsh on peat in the country. The salt marshes on the site include both the Atlantic and Mediterranean types, habitats that are listed on Annex I of the E.U. Habitats Directive. Machair occurs most extensively on Mweenish Island, Finish Island and Mason Island, which lie in the west of the site. These machair areas appear to be the remains of formerly more extensive systems; they are some of the most southerly machair systems in the country and are of conservation value from both vegetational and geomorphological perspectives. The habitat is listed on Annex I of the E.U. Habitats Directive with priority status. Lowland hay meadows are relatively rare within the site, but some good examples are known. The habitat is most commonly found in small, unimproved fields located behind beaches, which are influenced by blown sand. Perhaps the most extensive area of the habitat is to be found at Ardmore Point. The vegetation here is dominated by a species-rich mixture of grasses and low- to medium-sized forbs. A number of relatively rare orchids and other vascular plants have been recorded from this site. This is a threatened habitat that is listed on Annex I of the E.U. Habitats Directive. Otter, a species listed on Annex II of the E.U. Habitats Directive, occurs commonly throughout the site. The site is used by a small breeding population of Common Seal. Grey Seal is a regular visitor and may breed. The islands and islets of Kilkieran Bay, mainly those on its western side are important for their colonies of seabirds, particularly breeding terns - Arctic Tern (99 pairs recorded in 1995; 308 pairs, 1984), Common Tern (47 pairs, 1995; 371 pairs, 1984), Little Tern (7-9 pairs, 1995; 11 pairs 1984). All of these tern species are listed on Annex I of the E.U. Birds Directive. Inishmuskery, and probably other islands, are used by a population of Barnacle Geese in winter (370 in spring 1994) a species that is also listed on Annex I of the Birds Directive. Eagle Rock is of interest for its population of Black Guillemot (30 individuals, 1984). The site also supports colonies of

gulls - Herring Gull (310 individuals, 1994), Great Black-backed Gull (6 individuals, 1984) and Black-headed Gull. Kilkieran Bay and Islands is an extensive coastal complex site that is of high conservation value, particularly for the fine examples of marine and terrestrial E.U. Habitats Directive Annex I habitats that it supports and for its important Otter and seabird populations.

Appendix 4

Natura Impact Statement

Remedial Natura Impact Statement

Quarry at Shannapheasteen Co.Galway

McCarthy
Keville
O'Sullivan

Planning & Environmental Consultants

DOCUMENT DETAILS

Client:	Connemara Granite teo & Mr Stephen Larkin
Project title:	Quarry Operations Shannapheasteen, Co.Galway
Project Number:	120417
Document Title:	Remedial Natura Impact Statement
Doc. File Name:	120417 – NIS – 2013.05.03 - F
Prepared By:	McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, G.F.S.C. Moneenageisha Road, Galway

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01	Final	03/05/2013	120417 – NIS – 2013.05.03 - F	PR	BK

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1 INTRODUCTION

1.1 General Introduction

This Remedial Natura Impact Statement has been completed to provide the information necessary to allow the competent authority to conduct a Remedial Article 6(3) Appropriate Assessment of a quarrying operation at Shannapheasteen, Co. Galway

The study site is located partially within the Connemara Bog Complex SAC (Site Code 002034) and Connemara Bog Complex SPA (004181). All other Natura 2000 sites are located at over 6km from the study area.

According to the Department of the Environment, Heritage and Local Government Guidelines, issued in December 2009, on the implementation of Article 6(3) of the Habitats Directive as transposed into Irish Law under the European Communities (Natural Habitats) Regulations, 1997 (S.I. 94/1997), the likely effects of all projects or plans, either alone or in combination with other projects or plans, upon the conservation objectives of Natura 2000 sites must be considered. Where significant or indeterminate impacts on the conservation objectives of Natura 2000 sites (SACs and SPAs) are possible as a result of the proposed plan or project, a Habitats Directive Appropriate Assessment must be conducted by the competent authority, based on objective scientific information in the form of a Natura Impact Statement. However, where no significant or indeterminate impacts on the conservation objectives of Natura 2000 sites are identified, a Finding of No Significant Effects (FONSE) may be issued instead. In this case, as part of a remedial EIS procedure, it has been concluded that a Natura Impact Statement is required to allow the competent authority to further consider the impacts on Natura 2000 sites associated with the quarry.

McCarthy Keville O'Sullivan Ltd. has been appointed to prepare the NIS to determine whether the works have the potential to have had any significant or indeterminate impacts on the integrity of Natura 2000 sites in the surrounding area

The report is based on a desk study and site visit and has been prepared by a suitably qualified ecologist. Full details of these studies are provided in the REIS that has been prepared in relation to the project and any relevant information is also provided in the following sections. It is intended the information contained within this document will provide the information necessary for the competent authority to conduct a remedial Article 6(3) Appropriate Assessment.

This report has been prepared in accordance with the European Commission guidance document *Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC* (EC, 2001), the Department of the Environment's Guidance on the Appropriate Assessment of Plans and Projects in Ireland (December 2009, amended February 2010) and Circular NPWS 1/10 & PSSP 2/10.

1.2 Site Location & Description

1.2.1 Location

The site is located 8.7km northeast of Costelloe village, Co. Galway in South Connemara (11km, via road from the junction with the R336 near Rossaveel). It lies along the eastern side of the local road between Rossaveel and Oughterard.

1.2.2 Description of Existing Quarry Operation

Shannapheasteen 'Blue' Granite is quarried at the site. Currently there is a temporary office building and stone cutting plant located at the south west corner of the site. As the quarry operator lives immediately north of the quarry entrance there is currently no facilities (i.e. no toilets / wastewater treatment facilities), no drinking water supply, no canteen) at the quarry site.

The site comprises of access and haul roads, an open cut rock quarry in the south-western area and a number of small excavation sites throughout the eastern area of the site. The remainder of the site is peat bog land. The Shannapheasteen Stream forms the western / southern boundary of the study area. A silt fence is located along much of the river bank boundary of the quarry. In 2010 Mr. Larkin proposed to upgrade the quarry facilities (Planning Application Ref: 10/702) including the following:

- A weigh bridge
- An office / canteen / store building with a water supply from a borehole to the north of the site and serviced by 'Kingspan Envirocare p6 Treatment Plant with a proposed raised polishing filter,
- Wheel wash, haul and site road drainage system with a petrol interceptor and grit inceptor which drains to the ponds within the quarry. The wheel wash will be supplied with water from the quarry ponds via a pump.
- Engineered soakaway for office building rainwater drainage.
- Quarry stone crush and screening plant and associated facilities with water supplied from the quarry ponds via a pump.

In 2010 a five year management plan for the quarry was drawn up in consultation with the NPWS and Inland Fisheries Ireland and is included as Appendix 6 to the EIS.

The main recommendations are:

- Revegetation of spoil heaps
- Increased water management
- Actions to protect the river (Berm building and Terram Screening)
- The ecological management plan has objectives to protect the river and has zoned the area of SAC as a non intervention area for protection. The plan was agreed in 2010 with the owners, National Parks and Wildlife Service and the Inland Fisheries (a copy is attached)
- A compliance check in July 2012 indicated that the management plan is fully operational and the objectives of this plan is being met.

A management plan compliance report was prepared in August 2012 and it was noted that the management strategies for Sheannapheasteen Quarry as specified under the five year management plan are currently being implemented. It is estimated that 70-80% of the actions specified in were complete or underway at the site inspection July

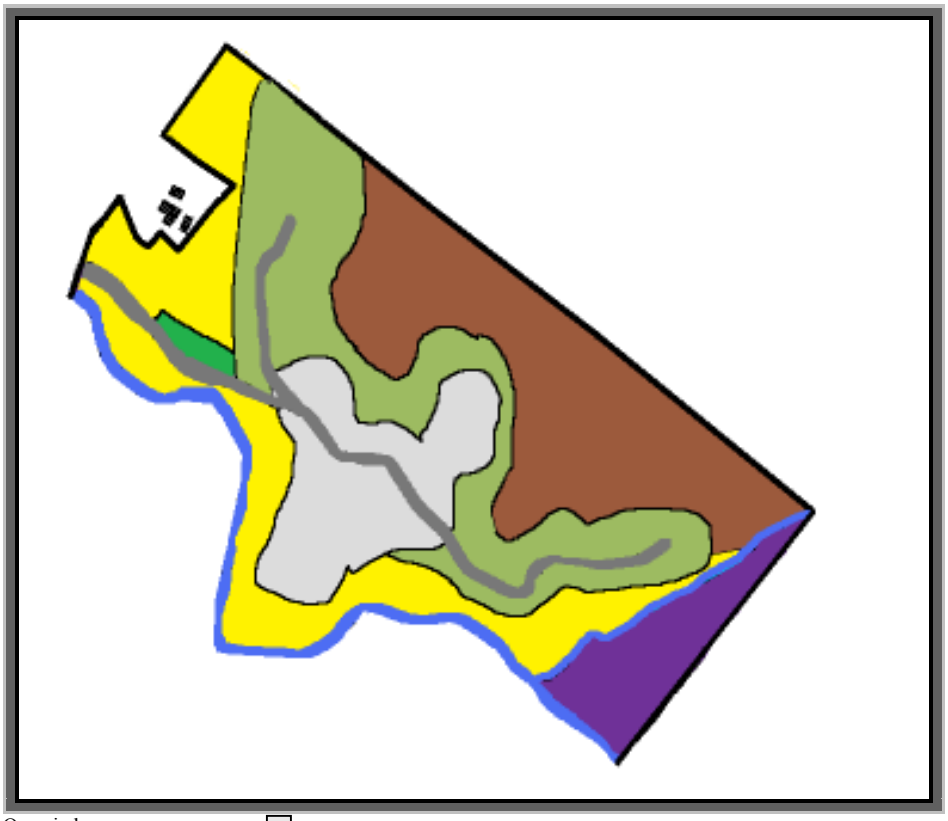
2012. Progress is ongoing and all actions are expected to be completed well ahead of the 2015 target.

1.2.3 Description of the quarry and surrounding habitats

1.2.3.1 Habitats Present

Habitats present on the site of the quarry were classified according to the guidelines set out in 'A Guide to Habitats in Ireland' (Fossitt, 2000). The habitats present are shown (overlain by the footprint of the quarry) in a Habitat Map, Figure 1.2, below. The habitats recorded at the site of the quarry are listed below in Table 1.1. The habitat names are followed by their corresponding habitat reference code (in brackets) and information on the respective areas of each habitat present are also listed.

Figure 1.2 Habitat Map



Quarried area

Recolonising bare Ground

Cutover Bog

Blanket Bog

Heath dominated by rushes

Roads

River

Treeline

Table 1.1 Habitats at Shanapheasteen Quarry, Co. Galway

Habitat	Area	ha	Area %
Cutover bog PB4	Active turf cutting	3.6	35%
Spoil and Bare Ground (ED2)/Recolonising bare ground (ED 3)	Forestry tracks	2.5	25%
Wet Heath	Dominated by Rushes	2.0	20%
Active quarries and mines ED4	Worked area of quarry bare exposed granite	0.7	7%
Lowland blanket bog PB3	SAC area	1.0	10%
Eroding/upland rivers (FW1)	600m in length 4-6m wide	0.2	2%
Treeline (WL2)	Conifers and Rhododendron	0.1	1%
Total		10.1	100

The study area covers 10.1 hectares and is situated 9.7 kilometres north east of Rossaveal village.

Cutover bog PB4

The area to the north of the quarry is cutover. The area is characterised by vertical face banks the actual active area is estimated at 200m2 and is in three separate areas. All have been recently cut. In places standing water is present. Part of this area is uncut but has been subjected to drainage. This area is used as a soakaway for water containing low levels of sediment pumped up from the quarry base through a pump with a petrol interceptor.

The vegetation is similar to that of Lowland Blanket bog (PB4) as described below except generally the habitat is drier due to the drainage works.

Plate 1. Cut over Bog within the study area

Lowland blanket bog PB3

The land to the south east corner forms part of the Connemara Bog Complex SAC and SPA. It is active blanket bog continous with the adjacent commonage. The vegetation consisted of Purple Moor-grass (*Molinia caerulea*), Black Bog-rush (*Schoenus nigricans*) with Heathers Ling (*Calluna vulgaris*) and Cross leaved heath (*Erica tetralix*). Broadleaved herbs noted included Lousewort (*Pedicularis sylvatica*) and Bog-myrtle (*Myrica gale*) may be locally abundant. Bod Asphodel (*Narthecium ossifragum*) typical of low nutrient bogs was noted as was Sphagnum mosses and the lichen Cladonia.

Plate 2. Blanket Bog within SAC in southern section of the study area.

Wet Heath HH3

The blanket Bog grades into wet heath which is dominated by Purple moor grass and Rushes (*Juncus spp.*) around the excluded house and at the stream edge. Gorse (*Ulex spp.*) is abundant on the riverbanks.

Plate 3.Wet heath at edge of River

Active quarries and mines ED4

This is a granite quarry which has been operational since the 1930s this classification is used for all active rock or sediment quarries and mines, or parts of these, where levels of disturbance are so high that there is no vegetation present. Some recent spoil heaps that are not colonised are also included here.

Plate 4 Active Quarry

Spoil and bare ground ED2/ Recolonising bare ground ED3

This category includes heaps of spoil and rubble resulting from years of quarrying on site. Recently these heaps have been consolidated under the 2011 to 2015 management plan and they are currently in the process of becoming revegetated. Most of the recolonisation is by Rushes (*Juncus spp.*), Thistles (*Cirsium palustre*) and Plantain (*Plantago*), Also considered in this category are the roads within the site that are largely unvegetated because they are regularly driven over or maintained.

Plate 5 Unmetalled road showing central unvegetated area and revegetating spoil heaps at edge

Eroding/Upland Rivers (FW1)

Two small streams cross the study area and empty into the unnamed river flowing west into Lough Dereenancunner, which may be described as a dystrophic lake. They have been classified as eroding/upland rivers (FW1). A typical example is shown in Plate 5.10, below. The aquatic vegetation of the peaty streams was abundant and they were bordered by Gorse (*Ulex spp*) Plants that were recorded in or by them included: Bulbous Rush (*Juncus bulbosus*) and Bog Pondweed (*Potamogeton polgonifolius*). There were some very narrow man-made ditches within the study area that had been excavated to drain the bog area. These ditches were neither mapped nor classified as drainage ditches (FW4) because they did not permanently contain water.

Plate 6 River (eroding/upland river) adjacent to study area

Treelines WL2

There is a small area of conifers on site between the excluded house and the main quarry area. A small amount of bramble (*Rubus fructicosus agg.*) and Rhododendron were seen in this vicinity. A Rhododendron dominated hedge lines the road.

Habitats Surrounding the Study Area

The land surrounding the study area is covered with a mosaic of lowland blanket bog (PB3) and wet heath (HH3).

1.2.3.2 Significance of Habitats

Most of the site (more than 60%) is impacted on by past quarrying. The only habitat of ecological significance is the river bordering the site and the small area of blanket bog to the south west of the site.

The study area lies within an unnamed river catchment, which drains into Lough Dereenacununer and eventually into Lough Fermoyle. This river lies within the Owenboliska-Cashla-Screeb-Coastal catchment (Hydrometric Area 31).Atlantic Salmon, a species listed in Annex II of the EU Habitats Directive, is known to be present in this river bordering the study area according to information received from Inland Fisheries Ireland, Galway..

- Salmon (Salmo salar) [1106] is among the qualifying Interests of the Connemara Bog Complex SAC.

Another species Otter (Lutra lutra) [1355] is assumed to use this area as part of their foraging area. Although no evidence of this species was recorded on site the habitat is suitable. According to Bailey and Rochford (2006) otters are commonly found throughout the western region and were present at 70.16% of sites surveyed in 2004/5 survey.

The site is bordered by the Connemara Bog Complex cSAC and SPA. Both of these areas were designated primarily for blanket bog and heath habitats and associated avifauna. Blanket Bog and Wet Heath, Habitats listed in Annex I of the EU Habitats Directive are present within the study area.

- Blanket bog (*active only) [7130]
- Northern Atlantic wet heaths with *Erica tetralix* [7130]

In addition, Lough Dereenancunner, which may be described as an dystrophic lake is located downstream of the study area.

- Natural dystrophic lakes and ponds [3160]

Therefore the main significance of the habitats are the area of blanket bog and some sections of Wet Heath that are included to the south west of the site and the adjacent river. Both of these habitats lie within the designated area.

2 BACKGROUND TO DESIGNATED SITES

With the introduction of the EU Habitats Directive (92/43/EEC) which was transposed into Irish law as the Natural Habitats Regulations, 1997, the European Union formally recognised the significance of protecting rare and endangered species of flora and fauna and also, more importantly, their habitats. Member states were directed to provide lists of sites for designation.

2.1.1 Natural Heritage Areas

Natural Heritage Areas (NHAs) are sites that were designated for the protection of flora, fauna, habitats and geological sites of **national** importance. Management of NHAs is guided by planning policy and the Wildlife (Amendment) Act 2000. It was from these NHAs that the most important sites were selected for international designation as SACs and SPAs.

2.1.2 Special Areas of Conservation and Special Protection Areas

There are two types of EU site designation; the Special Area of Conservation (SAC) and the Special Protection Area (SPA). These sites form part of "*Natura 2000*" a network of protected areas throughout the European Union. Any works or projects that have the potential to impact on a Natura 2000 site must be screened for Appropriate Assessment. If, following the screening process, the potential for impacts cannot be discounted, an Appropriate Assessment (AA) must be carried out. The AA process is informed by scientific information, which is presented in the form of a Natura Impact Statement. The AA process, or screening for same, does not apply to NHAs.

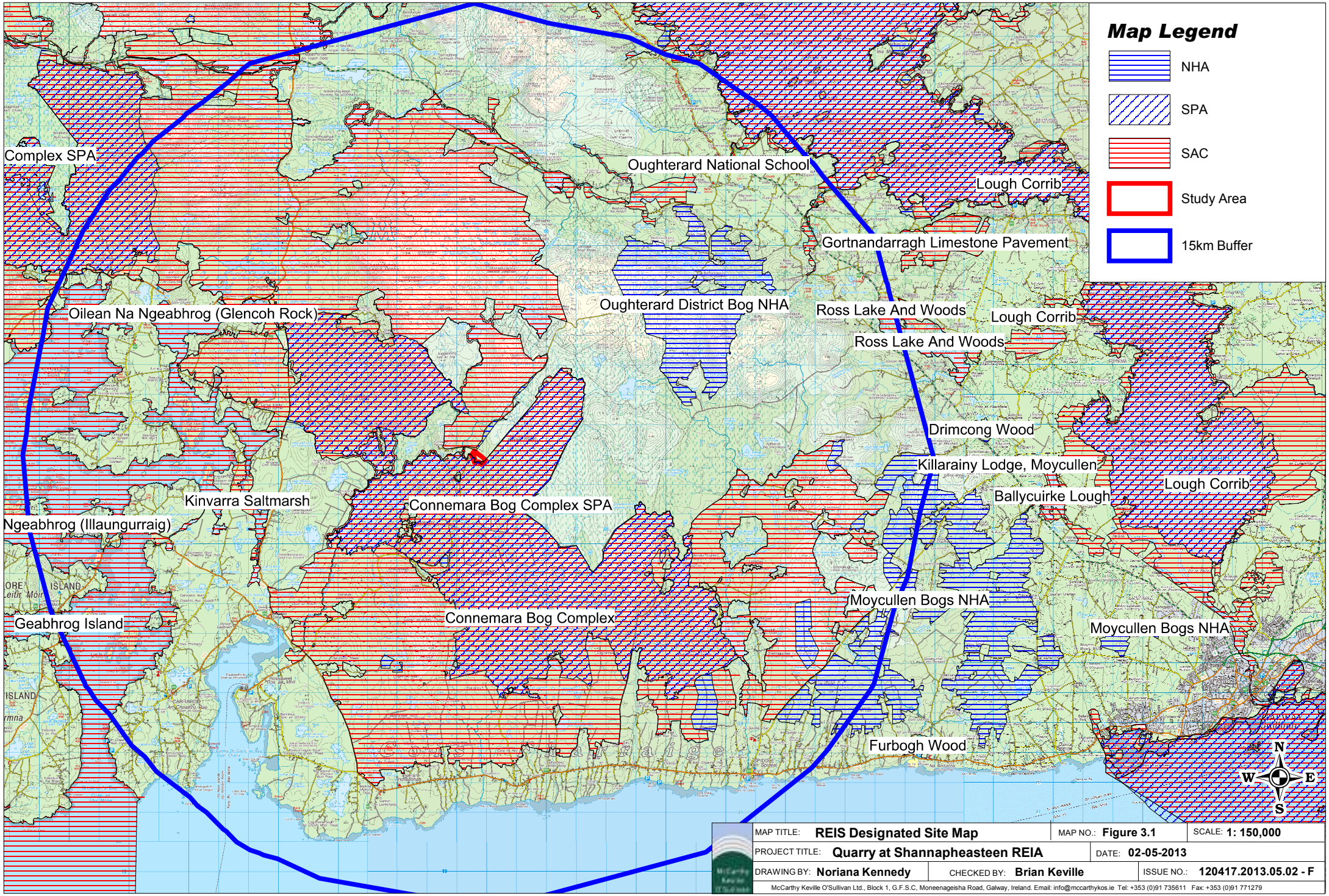
SACs are designated under the EU Habitats Directive for the conservation of flora, fauna and habitats of European importance. Annex I of the EU Habitats Directive lists certain habitats that must be given protection through the designation of SACs. Certain habitats are deemed 'priority' and have greater protection. Irish habitats include raised bogs, active blanket bogs, turloughs and heaths, in addition many lakes and rivers are also designated. Annex II of the Directive lists species whose habitats must be protected through the designation of SACs and includes Lesser Horseshoe Bat, Otter, Salmon and White-clawed Crayfish.

SPAs are designated under the EU Birds Directive for the conservation of bird species and habitats of European importance.

3 DESCRIPTION OF THE NATURA 2000 SITES IN THE VICINITY OF THE QUARRY

The National Parks and Wildlife Service publish information regarding areas designated for conservation. Some of this information was consulted with regard to designated areas within 15km of the site of the quarry. The study site is located partially within the Connemara Bog Complex SAC (Site Code 002034) and Connemara Bog Complex SPA (004181). All other Natura 2000 sites are located at over 6km from the study area.

All Natura 2000 sites within a radius of 15km of the quarry are shown in Figure 3.1 and listed in Table 3.1. This table determines whether significant impacts on any of the Natura 2000 sites can be discounted by virtue of their distance from the quarry, the lack of habitat or hydrological connectivity or the nature of their qualifying interests. The table also identifies any Natura 2000 sites, which require further assessment. The Conservation Objectives for all these sites were considered (as accessed on 30/04/2013) and are available on the website of the National Parks & Wildlife Service http://www.npws.ie/protectedsites/



MAP TITLE: **REIS Designated Site Map**	MAP NO.: **Figure 3.1**	SCALE: **1: 150,000**
PROJECT TITLE: **Quarry at Shannapheasteen REIA**	DATE: **02-05-2013**	
DRAWING BY: **Noriana Kennedy**	CHECKED BY: **Brian Keville**	ISSUE NO.: **120417.2013.05.02 - F**

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Table 3.1 Natura 2000 sites within 15km of the quarry and their respective distances from them.

Designated Site and Site Code	Distance From Quarry (km)	Assessment Criteria
Connemara Bog Complex SAC Site Code 002034	**Within study area.**	**The site of the quarry is located partially within the SAC and therefore impacts cannot be discounted at this stage.**
Connemara Bog Complex SPA Site Code 004181	**Within study area.**	**The site of the quarry is located partially within the SAC and therefore impacts cannot be discounted at this stage.**
Kilkeran Bay and Islands SAC Site Code 002111	6.5	This designated site is located 6.5km from the quarry and is unlikely to be impacted upon due to its location and the nature of its conservation objectives. The stream that flows past the site discharges into the sea in an area that is not designated as part of this SAC It is screened out at this stage.
Lough Corrib SAC. Site Code 000297	12.8	This designated site is located 12.8km from the quarry in an area that is not hydrologically linked to it. Having considered the Conservation Objectives for this site, its location and the lack of hydrological connectivity with the quarry, impacts are considered unlikely and the site has been screened out at this stage.
Maamturk Mountains SAC Site Code 002008	14.5	This designated site is located 14.5km from the quarry in an area that is not hydrologically linked to it. Having considered the Conservation Objectives for this site, its location and the lack of hydrological connectivity with the quarry, impacts are considered unlikely and the site has been screened out at this stage.

As shown in Table 3.1, both Connemara Bog Complex SAC and SPA will be considered further in this assessment as the potential for the quarrying operation to have had impacts on these sites was identified. The other Natura 2000 sites within a 15 kilometre radius have been screened out at this stage.

4 ARTICLE 6(3) ASSESSMENT CRITERIA

The following section considers potential impacts specifically on the Natura Sites identified in the previous section as having the potential to be have been impacted by the quarry operations. It addresses each site individually in respect of its own Conservation Objectives, Qualifying Interests or Special Conservation Features in sections 4.1 and 4.2. It then concludes in Section 4.3, on the likelihood of any significant or indeterminate impacts on the sites in general having resulted from the quarrying activities.

4.1 Connemara Bog Complex SAC

4.1.1 Potential for Impacts on the Qualifying Interests

Table 4.1. Consideration of potential impacts on the Qualifying Interests of the Connemara Bog Complex SAC and its Conservation Objectives

Annex I Habitats	Potential for Impacts	
[1150]* Coastal lagoons	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred.	**Indirect Impact** The quarry has the potential to indirectly impact on habitats downstream of the quarry through pollution of the adjacent river. However, no evidence of this having occurred was recorded during the EIA studies and a management plan is in place to ensure that the river continues to be adequately protected during ongoing operations.
[1170] Reefs	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred.	**Indirect Impact** This marine habitat is highly unlikely to have been impacted upon by the quarrying operations due to its coastal and marine nature.
[3110] Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred.	**Indirect Impact** The quarry has the potential to indirectly impact on habitats downstream of the quarry through pollution of the adjacent river. However, no evidence of this having occurred was recorded during the EIA studies and a management plan is in place to ensure that the river continues to be adequately protected during ongoing operations.

Annex I Habitats	Potential for Impacts	
[3160] Natural dystrophic lakes and ponds	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred.	**Indirect Impact** The quarry has the potential to indirectly impact on habitats downstream of the quarry through pollution of the adjacent river. However, no evidence of this having occurred was recorded during the EIA studies and a management plan is in place to ensure that the river continues to be adequately protected during ongoing operations.
[3260] Water courses of plain to montane levels with the Ranunculion fluitantis and CallitrichoBatrachion vegetation	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred.	**Indirect Impact** The quarry has the potential to indirectly impact on habitats downstream of the quarry through pollution of the adjacent river. However, no evidence of this having occurred was recorded during the EIA studies and a management plan is in place to ensure that the river continues to be adequately protected during ongoing operations.
[4010] Northern Atlantic wet heaths with Erica tetralix	**Direct Impact** This habitat is recorded within the study area in the vicinity of the quarry. It is possible that historic quarrying activity may have impacted on this habitat within the SAC. Such an impact is not possible to prove and or quantify. The habitat is adequately protected within the SAC during the ongoing quarry operation	**Indirect Impact** This habitat was recorded within the study area adjacent to the quarry footprint. Indirect impacts resulting from the run off of pollutants and encroachment are addressed in the 5-year management plan that is provided as Appendix 6 to the EIS. In addition Section Seven of the EIS concludes that the impact of the Quarry on Hydrology and Hydrogeology is minor to imperceptible and there will be no impact on the adjacent Connemara Bog Complex SAC in that regard. No indirect impacts are therefore considered likely to have occurred.
[4030] European dry heaths	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred.	**Indirect Impact** No such habitats were recorded in the vicinity of the study area and no indirect impacts on this terrestrial habitat have been identified.
[6410] Molinia meadows on calcareous, peaty or clayeysiltladen soils (Molinion caeruleae)	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred.	**Indirect Impact** No such habitats were recorded in the vicinity of the study area and no indirect impacts on this terrestrial habitat have been identified.

Annex I Habitats	Potential for Impacts	
[7130] Blanket bogs (* if active only)	**Direct Impact** Examples of this habitat are located within the SAC in the study area but no evidence of impacts on this habitat having occurred as a result of the quarrying operations were identified during the EIA procedure	**Indirect Impact** Examples of this habitat in the SAC, although within the study area, are removed from the footprint of the quarrying activities. In addition Section Seven of the EIS concludes that the impact of the Quarry on Hydrology and Hydrogeology is minor to imperceptible and there will be no impact on the adjacent Connemara Bog Complex SAC in that regard. No indirect impacts are therefore considered likely to have occurred.
[7140] Transition mires and quaking bogs	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred. The habitat is adequately protected within the SAC during the ongoing quarry operation	**Indirect Impact** No such habitats were recorded in the vicinity of the study area and no indirect impacts on this terrestrial habitat have been identified.
[7150] Depressions on peat substrates of the Rhynchosporion	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred.	**Indirect Impact** No such habitats were recorded in the vicinity of the study area and no indirect impacts on this terrestrial habitat have been identified.
[7230] Alkaline fens	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred.	**Indirect Impact** The quarry has the potential to indirectly impact on habitats downstream of the quarry through pollution of the adjacent river. However, no evidence of this having occurred was recorded during the EIA studies and a management plan is in place to ensure that the river continues to be adequately protected during ongoing operations.
[91A0] Old sessile oak woods with Ilex and Blechnum in the British Isles	**Direct Impact** No Such habitats were recorded in the vicinity of the Study area and no direct impacts likely to have occurred.	**Indirect Impact** No such habitats were recorded in the vicinity of the study area and no indirect impacts on this terrestrial habitat have been identified.

Annex II Species		
Marsh Fritillary (1065) Euphydryas Aurinia	**Direct Impact** No suitable habitat for this species was recorded in the vicinity of the study area and no impacts are likely to have occurred during the quarry operation.	**Indirect Impact** No suitable habitat for this species was recorded in the vicinity of the study area and no impacts are likely to have occurred during the quarry operation.
Otter (1355) *Lutra lutra*	**Direct Impact** It is possible that habitat for Otter was lost during the initial establishment of the quarry, though this cannot be proven nor quantified. However, no direct impacts on this species were identified during the recent EIA studies at the site	**Indirect Impact** Indirect impacts on this species could occur as a result of water pollution and disturbance. No signs of either water pollution or disturbance as a result of quarrying operations were recorded during the studies associated with the recent EIA studies. In relation to noise, it was concluded that , since blasting no longer occurs on the site, the impacts associated with noise were not significant. A 5-year management plan for the site has been drawn up to minimise and prevent impacts on areas outside the site such as water pollution occurring during the ongoing operation of the quarry.
Atlantic Salmon [1106] *Salmo salar* (only in fresh water)	**Direct Impact** The quarry is a terrestrial operation with no works undertaken in the adjacent river and therefore, no direct impacts on this species are considered likely to have occurred.	**Indirect Impact** Indirect impacts on this species could occur as a result of water pollution No signs of water pollution as a result of quarrying operations were recorded during the studies associated with the recent EIA studies. A 5-year management plan for the site has been drawn up to minimise and prevent impacts on areas outside the site such as water pollution occurring during the ongoing operation of the quarry.
Slender Naiad [1833] *Najas flexilis*	**Direct Impact** No suitable habitat for this species was recorded in the vicinity of the study area and no impacts are likely to have occurred during the quarry operation.	**Indirect Impact** Indirect impacts on this species could occur as a result of water pollution No signs of water pollution as a result of quarrying operations were recorded during the studies associated with the recent EIA studies. A 5-year management plan for the site has been drawn up to minimise and prevent impacts on areas outside the site such as water pollution occurring during the ongoing operation of the quarry.

4.2 Connemara Bog Complex SPA

4.2.1 Potential for Impacts on the Qualifying Interests

Table 4.2. Consideration of potential impacts on the Special Conservation Interests of the Connemara Bog Complex SPA and its Conservation Objectives

Special Conservation Interest	Potential for Impacts	
Phalacrocorax carbo [breeding] Cormorant	**Direct Impact** No suitable Habitat for this species was recorded in the vicinity of the study area during the recent studies in relation to the EIA and no direct impacts were identified	**Indirect Impact** No suitable Habitat for this species was recorded in the vicinity of the study area during the recent studies in relation to the EIA and no indirect impacts were identified
Falco columbarius [breeding] Merlin	**Direct Impact** The habitats within the footprint of the quarry were considered to have low suitability for this species and direct impacts are not considered likely to occur	**Indirect Impact** Indirect impacts could result from noise disturbance from stone working or traffic associated with activities on site. The noise results from working of the stone, which is extracted through the use of expanding plugs. No blasting occurs. Such disturbance is considered consistent with normal activity in a rural working environment with agriculture and forestry. The disturbance associated with the quarrying activity is not considered significant.
Pluvialis apricaria [breeding] Golden Plover	**Direct Impact** The habitats within the footprint of the quarry were considered to have low suitability for this species and direct impacts are not considered likely to occur	**Indirect Impact** Indirect impacts could result from noise disturbance from stone working or traffic associated with activities on site. The noise results from working of the stone, which is extracted through the use of expanding plugs. No blasting occurs. Such disturbance is considered consistent with normal activity in a rural working environment with agriculture and forestry. The disturbance associated with the quarrying activity is not considered significant.

Special Conservation Interest	Potential for Impacts	
Larus canus [breeding] Common Gull	**Direct Impact** No suitable Habitat for this species was recorded in the vicinity of the study area during the recent studies in relation to the EIA and no direct impacts were identified	**Indirect Impact** No suitable Habitat for this species was recorded in the vicinity of the study area during the recent studies in relation to the EIA and no indirect impacts were identified

4.3 General Impacts

4.3.1 Description of the Individual Elements of the Project with Potential to give Rise to Impacts on the Natura 2000 Site(s)

- Historic and ongoing quarry operations adjacent to the Connemara Bog Complex SAC/SPA

4.3.2 Description of any Likely Direct, Indirect or Secondary Impacts of the Project on the Natura 2000 Site

Any likely direct, indirect or secondary impacts of the proposed study, both alone and in combination with other plans or projects, on the SAC/SPA by virtue of the following criteria: size and scale, land-take, distance from the Natura 2000 site or key features of the site, resource requirements (such as water abstraction), emissions (disposal to land, water or air), excavation requirements, transportation requirements and duration of construction, operation, decommissioning are presented in Table 4.3 below.

Table 4.3. Likely Impacts of the Study on the Natura 2000 Site

Likely Direct, Indirect or Secondary Impacts of the Project on the Natura 2000 Sites	
Size and Scale	The quarry is small scale in nature and is only 10.1 hectares in size with relatively low levels of activity and disturbance. As such, it is unlikely to have resulted in significant impacts in regard of its size and scale.
Land-take	Whilst approximately 2 hectares of the site is located in a Natura 2000 site. The footprint of the area disturbed by the quarry is only located within SAC at its very edge along a small section within the buffer against the river. This may have occurred prior to the designation of the SAC and does not constitute a significant negative impact.
Distance from the Natura 2000 Site or Key Features of the Site	The works are located adjacent (and minor works within) to the SAC/SPA but measures are in place to ensure that impacts are minimised to insignificance in areas outside the development footprint and thus no significant impacts in regards of the distance to the designated site are anticipated.
Resource Requirements	No resources will be required from within the SAC/SPA and no resultant impact is anticipated.
Emissions	Emissions could include the run off of silty water during the construction phase of the development or hydrocarbon spillages resulting from ill maintained machinery or accidental spillage. However, In 2010 a five-year management plan for the quarry was drawn up in consultation with the NPWS and Inland Fisheries Ireland and is included as Appendix 6 to the EIS. Measures have been put in place to avoid harmful emissions as a result of the quarry. No evidence of water pollution attributable to the quarry was recorded during recent studies of the river habitats that were undertaken in completing the EIS,.
Excavation Requirements	Excavations have been limited to areas outside the Natura 2000 site and no indirect impacts as a result of this excavation have been identified. In addition a five year management plan is in place to further prevent indirect impacts on lands outside the site during the continued operation of the quarry.
Transportation Requirements	All access to the quarry will be on public roads and internal site roads and quarried areas with no requirement for vehicular access to the designated sites.

Likely Direct, Indirect or Secondary Impacts of the Project on the Natura 2000 Sites	
Duration of Construction, Operation, Decommissioning	The quarry has been operating for over 80 years and significant impacts on the sensitive areas outside the footprint of the quarry and within the designated areas were not identified. It is unlikely that there have been any significant impacts as a result of the length of operation of the quarry.
Cumulative Impacts with other Projects or Plans	A brief search of other plans and projects and local authority policies in the areas was carried out and The following are projects, which have been approved of for the general area. This particular area appears attracted considerable windfarm development as within 6 km of the site there are various wind farms planned. Planning Reference 10303 Finnaun Townland - Planning permission has been granted to Coillte for a 22 Turbine windfarm. Planning Reference 101434 Ugool Townland - Planning permission has been granted to Comhlacht Gaoithe Teorenta for 20 wind turbines. Planning Reference 101454 Lettercafroe townland - an application for planning permission by SSE renewables has been granted for 8 turbines. Other projects in the general area include housing and there is a small quarry to the north east of this site (c200m). In summary however, given the small scale and ongoing nature of the project and its lack of significant impacts on areas outside the site No cumulative impacts of significance were identified in relation to this development

4.3.3 Description of any Likely Changes to the Natura 2000 Site

Any likely changes to the Connemara Bog Complex SAC/SPA are described below in Table 4.4 with reference to the following criteria: reduction of habitat area, disturbance to key species, habitat or species fragmentation, reduction in species density, changes in key indicators of conservation value (e.g. water quality etc.) and climate change.

Table 4.4 Likely Changes to the Connemara Bog Complex SAC/SPA

Likely Changes to the Connemara Bog Complex SAC/SPA	
Reduction of Habitat Area	The quarry has only impacted on a small section of the Connemara Bog Complex. This is likely to have occurred prior to designation and is regarded as an historic impact. It is likely that the affected habitat was Wet Heath. Ongoing operation of the quarry will not result in any reduction of habitat area.
Disturbance to Key Species	Historical levels of disturbance to key species are impossible to quantify as initial site clearance took place over 80 years ago and blasting used to take place on the site. There was no SAC/SPA for the majority of this period. There will however, be no significant disturbance to key species such as the qualifying interests of the SAC and Special Conservation Features of the SPA resulting from the ongoing operation of the quarry.
Habitat or Species Fragmentation	Historic fragmentation issues are impossible to quantify as initial site clearance took place over 80 years ago. However the works are located outside the SAC/SPA and there will be no habitat or species fragmentation within the SAC/SPA resulting from the ongoing operation of the quarry..
Reduction in Species Density	Historic impacts on species density are impossible to quantify as initial site clearance took place over 80 years ago . However the works are located outside the SAC/SPA and there will be no reduction in the density of species of ecological significance. resulting from the ongoing operation of the quarry.

Likely Changes to the Connemara Bog Complex SAC/SPA	
Changes in Key Indicators of Conservation Value	No evidence of changes in key indicators of conservation value such as the respective Qualifying Interests and Special Conservation Features was recorded during the surveys and none are anticipated as a result of the ongoing operation of the quarry.
Climate Change	Given the nature and scale of the works, it is unlikely that there has been any impact on climate change

4.3.4 Description of any Likely Impacts on the Connemara Bog Complex SAC/SPA as a Whole

- The quarry is located largely adjacent to the SAC/SPA but has been designed to avoid all significant impacts outside the operating footprint and has not involved works on the sensitive habitats within the Natura 2000 site. There have not been and will not be any significant impacts on the Connemara Bog Complex SAC/SPA resulting from the proposed works.

4.3.5 Indicators of Significance as a Result of the Identification of Effects

Indicators of significance are provided in Table 4.5 below for any impacts identified above in terms of loss, fragmentation, disruption, disturbance and changes to key elements of the site, such as water quality.

Table 4.4. Indicators of Significance as a Result of the Identification of Effects

Indicators of Significance as a Result of the Identification of Effects	
Loss	Historical habitat loss within the SAC/SPA has been minimal and no further habitat will be lost
Fragmentation	There is unlikely to have been significant fragmentation of habitats and species within the SAC/SPA as a result of the quarrying operation and none is anticipated as a result of the ongoing operation of the quarry
Disruption	There is unlikely to have been significant disruption to the ecological processes within the SAC/SPA as a result of the quarrying operation and none is anticipated as a result of the ongoing operation of the quarry
Disturbance	There is unlikely to have been significant disturbancen to the ecological processes within the SAC/SPA as a result of the quarrying operation and none is anticipated as a result of the ongoing operation of the quarry
Changes to Key Elements of the Site	There is unlikely to have been changes to key elements of the sites within the SAC/SPA as a result of the quarrying operation and none is anticipated as a result of the ongoing operation of the quarry

4.3.6 Description any Likely Significant Impacts or Indeterminate Impacts of the Project on the Natura 2000 Sites

- No significant or indeterminate impacts on the conservation objectives of the Connemara Bog Complex SAC/SPA are likely to have occurred as a result of the quarrying operations with no significant impacts on its qualifying interests and Special Conservation Features recorded and measures put in place to avoid any significant impacts outside the borders of the quarry during ongoing operations.

5 FINDING OF NO SIGNIFICANT EFFECT STATEMENT

5.1 Quarry Operations, Shannapheasteen, Co. Galway

Name and Location of Natura 2000 Sites

- Connemara Bog Complex SAC (within study area)
- Connemara Bog Complex SPA (within study area)

Description of Project

- Granite Quarry and related operations

Is the project directly connected with or necessary to the management of the site?

- No.

Are there any other projects or plans that together with the project being assessed could affect the site?

- No, on the basis that no evidence of significant residual impacts of the quarry on any Natura 2000 sites have been recorded. Therefore cumulative impacts are not anticipated.

5.2 Assessment of Significance of Effects

Describe how the project is likely to affect the Natura 2000 site

- The project is unlikely to have significantly affected any Natura 2000 sites, given the nature and location of the works and absence of any significant impacts outside the site itself.

Explain why these effects are not considered significant

- The only direct impact on a Natura 2000 site is likely to have occurred prior to designation and involves minor loss of habitat.
- The works themselves have not involved significant disturbance or disruption to the ecological processes in the area outside the site itself.
- The works have been conducted following best practice to avoid significant impacts with a five year management plan in place to avoid impacts outside the footprint of the quarry

5.3 Data Collected to Carry Out Assessment

In preparation of the report, the following sources were used to gather information:

- Review of NPWS Site Synopses and Conservation Objectives for all Natura 2000 sites within a 15km radius of the quarry
- Review of OS maps and aerial photographs of the site of the Quarry
- Review of Remedial EIS
- Review of Ecological Assessment including site visit carried out by Marie Louise Heffernan, MSc, MIEEM, Cenv.
- RNIS prepared by Pat Roberts B.Sc. (Env.) MIEEM

5.4 Overall Conclusions

In conclusion, no significant or indeterminate impacts are likely to have occurred on the conservation objectives or overall integrity of any Natura 2000 site as a result of the quarrying operations and none are likely to occur as a result of continued operations as planned.

Appendix 5

Vascular Species List

List of Vascular Plants recorded on site

Ling (*Calluna vulgaris)*
Cross leaved heath *(Erica tetralix)*
Lousewort *(Pedicularis sylvatica)*
Bog-myrtle *(Myrica gale)*
Bog Asphodel (*Narthecium ossifragum*)
Bramble (*Rubus fructicosa*)
Rhododendron ponticum
Bog Pondweed (*Potamogeton polgonifolius).*
Purple moorgrass (*Molinia*)
Rushes (*Juncus* spp.)
Bulbous Rush (*Juncus bulbosus*),
Gorse (*Ulex* spp.)

Appendix 6

Environmental Management Plan

ASTER ENVIRONMENTAL CONSULTANTS LTD

Sheannapheasteen Quarry

5 Year Plan

Environmental Management Plan 2011-2015

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www.aster.ie

Summary

As part of the planning process for a proposed machinery shed, canteen toilet and associated works by Connemara Granite Teo, Galway County Council requested an Appropriate Assessment under the Habitats Directive. Although proposed works in themselves will not have a significant impact on the SAC (see screening report) there is already a probable negative impact on the SAC through the existence of the quarry at this location so close to a salmon river. Appropriate Assessments deal with proposed rather than existing projects and so it was proposed that a management plan with the objective of protecting the SAC be prepared.

The quarry in its present form exists whether or not it is worked or managed. It its current state it requires significant man power to manage water on site and to take actions necessary to revegetate the loose rock and fine material piled up at quarry edges. This management plan represents a clear opportunity to improve the environmental performance of this quarry and to put in place a permanent solution to its risk to the adjacent salmon river.

Main conservation objectives of Sheanapheasteen Quarry Management Plan

- To maintain the Annex II species, in the adjacent river, for which the cSAC has been selected at favourable conservation status: Salmon; Otter.
- To maintain and enhance the water quality of the adjacent river within the SAC Connemara Bog Complex 2034
- To maintain and enhance the ecological value of the other SAC habitat within the land parcel boundary.

Main management issues

There is a risk of silt entering the adjacent salmon river as a result of operations in the quarry.

Main strategies to achieve objectives

The main strategies are water management on site and consolidation and revegetation of loose material.

Table of Contents

1.0 Background to the Management Plan

Connemara Granite sought planning permission ref 10/702 to build the following;

- Industrial Building for storage and dry cutting granite
- A building with office, canteen, toilet and changing rooms and car parking place.
- Kingspan Envirocare treatment system proposed together with percolation area and petrol interceptor.
- Bridge with weighing and washing arrangements as well as any related services proposed by the quarry, QY No83 (gross space Floor 299.15sqm)
- Proposed amendment to the entrance of existing access road.

In response to the request for further information from Galway County Council (see below) Aster was commissioned by Connemara Granite to prepare an Appropriate Assessment Report.

"The planning authority is concerned regarding the potential of the development to have adverse effects on the Connemara Bog Complex cSAC , which us a designated European site that forms part of Natura 2000 and which is protected under the EU Habitats Directive (Council Directive 92/43/EEC) and the European Communities (natural Habitats Regulations 1997 (as amended).

The proposed development site is bordered to the south and to the east by the Connemara Bog Complex cSAC. The southern boundary is a freshwater stream located within the cSAC, which flows into the Fermoyle Lough/Glenicmurrin Lough System, all of which is located within the Connemara Bog Complex SAC, there is a risk that it may have a negative impact on the local freshwater ecology of the cSAC.

Therefore a full appropriate assessment is required and shall be undertaken in compliance with the Directive and regulations and in accordance with the relevant guidance outlined above. The assessment shall be undertaken by a suitably qualified person and shall be informed by an adequate level of ecological expertise. It is also advised to consult with the National Parks and Wildlife Service regarding the scope and contents of the assessment and to include any relevant information in the submitted documentation…"

1.1 Consultation

National Parks and Wildlife Service

A meeting took place with the regional manager Dr Noel Kirby on September 27th 2010 at NPWS offices Clifden and again on November 10th at the same location to discuss proposed plans and current issues on site.

The NPWS Conservation Ranger Aonghus O'Domhaill was contacted to source any additional information on the designated areas.

Inland Fisheries Ireland

The Senior Fisheries Environmental Officer Kevin Rogers carried out a site visit on the 6th October 2010.

The consultation revealed that there was general concern regarding activity in the quarry including water management, as well as the management of formerly worked and exposed areas.

1.2 Scope

An Appropriate Assessment is required under the Habitats Directive 92/43/EEC, Article 6(3) and (4), where it is identified that a proposed plan or project could have significant impact on a Natura 2000 site. The proposed works screened out for Appropriate Assessment (see screening report) as it was deemed that their impact on the adjacent SAC would not be significant.

However, these works are within an operational quarry next to an important Salmonid River and as such the quarry in itself is an ongoing potential risk to the river. Thus it was proposed that as well as carrying out a screening for Appropriate Assessment of the proposed works that a management plan with the objective of protecting the SAC in the long term be prepared.

This management plan is split into various sections

1. Location and boundaries
2. Ownership legal and status
3. Relationship to the SAC
4. Current and previous land use
5. Environmental Information
6. Management Framework
7. Zoning for Management

2.0 Location Including Site Boundaries

2.1 Location

Shannapheasteen Quarry is located in Connemara, Co. Galway. It is situated approximately 10km south west of Oughterard.

Grid Ref.: M 039 329

Area: 14.84 ha

Altitude Range: 0 m to 5 m

Townland: Shannapheasteen

2.2 Site Boundaries

The site includes the active quarry itself, formerly worked areas of the quarry as well as the active soakaway and areas proposed for new buildings. This is the area that the management plan will deal with. This is a slightly larger area than the legal boundary of Quarry (see map) but encompasses all the area that may impact on the adjacent river.

3.0 Ownership and legal status

3.1 Ownership

The land is owned by Stephen Larkin, Shanapheasteen Co. Galway.

3.2 Quarry Licence status

Quarry is registered as QY 83 under Section 261 of the Planning & Development Act 2000. Please see Map (attached) for Quarry area boundaries.

3.3 Rights Pertaining to the Site

Costello & Fermoyle Fisheries have Salmon and trout fishing rights in the river adjacent to the site.

3.4 Government Departments and Agencies

The following agencies have some jurisdiction either within the land parcel or adjacent to it.

Planning Authority Galway County Council	Galway County Council specifically refer to the following guidelines in respect of quarries. **Guidelines** Compliance with the provisions and guidance, as appropriate, contained within Section 261 of the Planning and Development Act 2000 (as amended), the DoEHLG *Quarries and Ancillary Facilities Guidelines 2004* and the *EPA Guidelines for Environmental Management in the Extractive Sector 2006*. These guidelines have been consulted in drawing up this plan.
National Parks & Wildlife Service (NPWS) of the Department of Environment, Heritage and Local Government (DEHLG)	NPWS is responsible for maintaining the nature conservation value of the SAC (part of the land parcel is within the SAC). The site is patrolled by local Conservation Rangers, with input from other staff as necessary. The Local Conservation Ranger is Aonghus O'Domhnaill
Inland Fisheries Ireland	Inland fisheries have responsibility for maintaining the Fisheries interest of the adjacent river. The Senior Fisheries Officer for the area is Kevin Rogers.

3.5 National Policy

Planning and Development Act, 2000 contains both mandatory and discretionary development plan objectives.

Mandatory objectives (section 10) of most relevance to quarries include:

• The conservation and protection of the environment including, in particular, the archaeological and natural heritage and the conservation and protection of European sites and any other sites (such as Natural Heritage Areas - NHAs) which may be prescribed;

Relevant discretionary objectives in the First Schedule of the Act include:

• Regulating, promoting or controlling the exploitation of natural resources;

• Protecting and preserving the quality of the environment, including the prevention, limitation, elimination, abatement or reduction of environmental pollution and the protection of waters, groundwater, the seashore and the atmosphere;

• Preventing, remedying or removing injury to amenities arising from the ruinous or neglected condition of any structure or from the objectionable or neglected condition of any land.

The main objective of this management plan is to protect the adjacent European Natura 2000 site (Connemara Bog Complex 2034).

4.0 Designated Natura 2000 site Information

The proposed development is located in close proximity to Connemara Bog Complex SAC (2034). Details of Connemara Bog Complex SAC, including site characteristics, qualifying interest, potential pressures and threats and conservation objectives are set out in the following sections.

This of key relevance to the preparation of the quarry management plan as the objectives for the management plan will be based on the conservation objectives for the adjacent SAC.

4.1 Description of the Designated Site

The Connemara Bog Complex is a large site encompassing the majority of the south Connemara lowlands, Co. Galway. Extensive tracts of western blanket bog form the core interest, but there are also areas of heath, woodland, lakes, rivers and streams.

The Connemara Bog Complex is underlain predominantly by various Galway granites, with small areas along the northern boundary of Lakes Marble, schist and gneiss.

The site is a candidate SAC selected for active blanket bog and lagoons, both priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for floating river vegetation, wet and dry heath, alkaline fen, transition mires, lowland oligotrophic lakes, dystrophic lakes, Rhynchosporion, old Oak woodlands, *Molinia* meadows and reefs, all habitats listed on Annex I of the E.U. Habitats Directive.

The site is also selected for the following species listed on Annex II of the same directive - Atlantic Salmon, Otter, the plant Slender Naiad and the Marsh Fritillary butterfly.

The main habitat within this site is lowland Atlantic blanket bog. Most of the area is covered by blanket peat greater than one metre in depth. The Connemara Bog Complex is characterized by areas of deeper peat surrounded by rocky granite outcrops, covered by heath vegetation. The deeper peat areas are often covered by lakes and river systems.

Nine legally protected plant species occur within this site (Flora (Protection) Order, 1999): Forked Spleenwort (*Asplenium septentrionale*), Parsley Fern (*Cryptogramma crispa*), Bog Hair-grass (*Deschampsia setacea*), Slender Cottongrass (*Eriophorum gracile*), Bog Orchid (*Hammarbya paludosa*), Slender Naiad (*Najas flexilis*), Heath Cudweed (*Omalotheca sylvatica*), Pillwort (*Pilularia globulifera*) and Pale Dog-violet (*Viola lactea*). The rare and threatened species, Dorset Heath (*Erica ciliaris*), Mackay's Heath (*Erica mackaiana*) and Green-winged Orchid (*Orchis morio*) also occur within this site. All the above species are listed in the Irish Red Data Book and Slender Naiad is listed on Annex II of the EU Habitats Directive.

The site is of national importance for wintering populations of Greenland Whitefronted Geese. Small flocks (up to 30) are nowadays found on Roundstone Bog There is an internationally important breeding area for Cormorants at Lough Scannive with 218 pairs present in 1985 in a colony which is known to have existed pre-1968. Golden Plover, a species listed on Annex I of the EU Birds Directive, nests at up to four locations in the site, with a maximum of two pairs noted at any one location. Another Annex I species known to be present in the site is Merlin. Lough Naskanniva is an important inland breeding site for Common Terns (up to 60 pairs in 1977 and 1992) and Choughs,

both of which are also Annex I species under the EU Birds Directive. Atlantic Salmon, listed under Annex II of the E.U. Habitats Directive occurs in many of the rivers within the site.

Arctic Charr occurs in a number of lakes within the site: Arctic Charr is listed in the Irish Red Data Book as being threatened. Otter has been recorded as occurring in the Connemara Bog Complex.

In summary, the Connemara Bog Complex encompasses a large area of relatively undamaged lowland Atlantic blanket bog of high conservation significance to Ireland as well as Europe. The site has nine protected and threatened Irish Red Data Book plant species. The site is internationally important for Cormorants and nationally important for Greenland White-fronted Geese and contains nesting sites for Golden Plover. The site supports several bird species listed on Annex I of the EU Birds Directive and a range of plant and animal species listed on Annex II of the EU Habitats Directive.

4.2 Conservation Objectives for Connemara Bog Complex SAC

The integrity of a Natura 2000 site is determined based on the conservation status of the qualifying features of the SAC as set out above. Once each site has been designated, it is required that a management plan should be drawn up for the Natura 2000 site which sets out the objectives for the site in order to maintain the favourable conservation status of these qualifying features and prevent in as far as possible threats and impacts on these habitats and species. A management plan has not yet been prepared for the Connemara Bog Complex SAC. In the absence of a NPWS Management Plan for the site, the following general conservation objectives are assumed for this designated site. These are based on general conservation principles and existing management plans for other SACs in Ireland.

Conservation Objectives Connemara Bog Complex

Objective 1: To maintain the Annex I habitats for which the cSAC has been selected at avourable conservation status: Coastal lagoons; Reefs; Oligotrophic waters ontaining very few minerals of sandy plains (Littorelletalia uniflorae); Natural dystrophic lakes and ponds; Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation; Northern Atlantic wet heaths with Erica tetralix; European dry heaths; Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae); Blanket bog; Transition mires and quaking bogs; Depressions on peat substrates of the Rhynchosporion; Alkaline fens; Old sessile oak woods with Ilex and Blechnum in British Isles.

Objective 2: To maintain the Annex II species for which the cSAC has been selected at favourable conservation status: Marsh Fritillary, Salmon; Otter; Slender Niaid.

Objective 3: To maintain the extent, species richness and biodiversity of the entire site.

Objective 4: To establish effective liaison and co-operation with landowners, legal users and

relevant authorities

4.3 Relationship to Designated Sites Designations

The quarry borders the river. The Special Area of Conservation designation includes a buffer zone averaging 5m along the river boundary inside the current berm. In addition, part of the land parcel is within the SAC and is located to the south east comprising 1.03 ha in size.

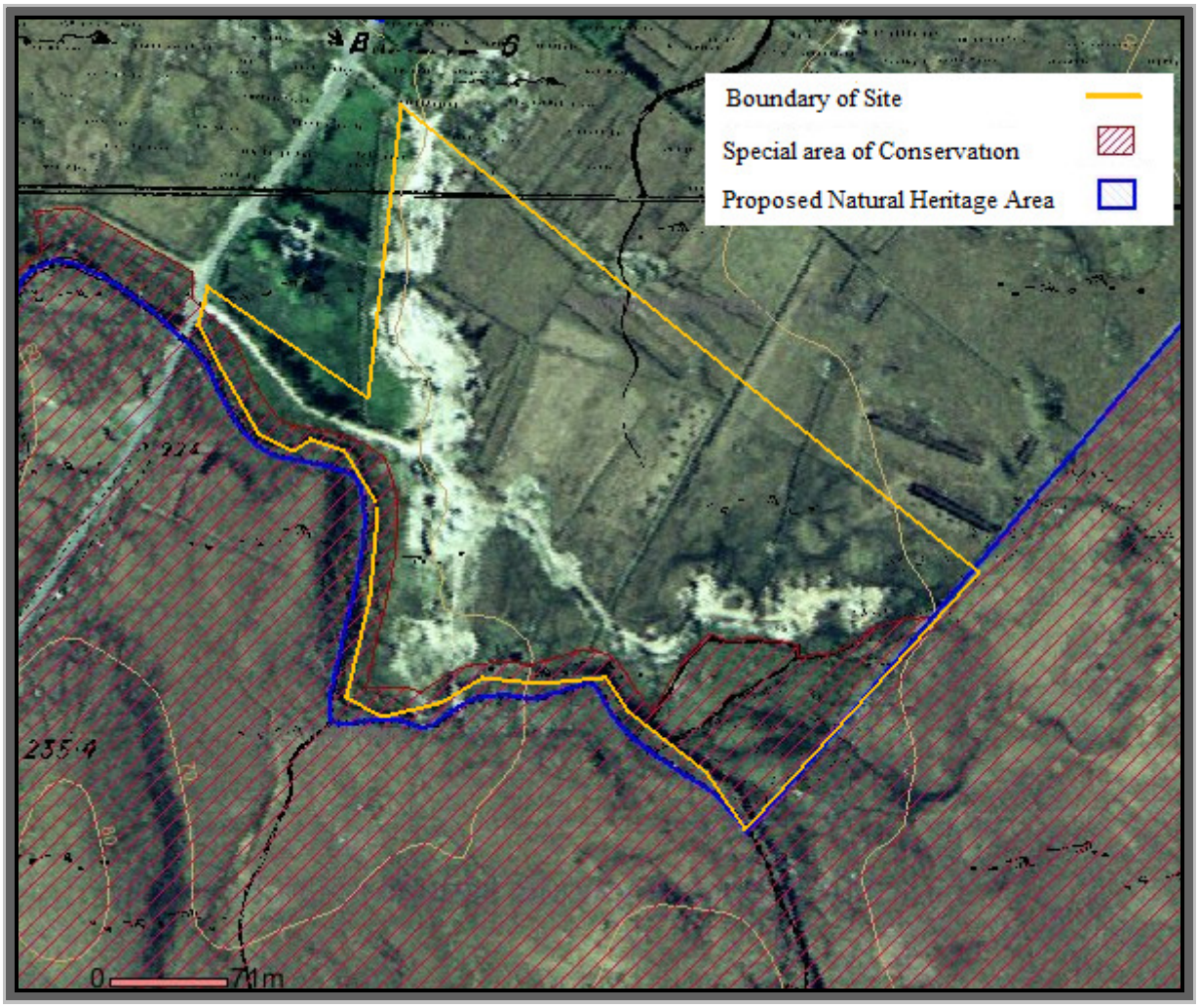

Photo 1: Proposed Site relative to designated area (NPWS.ie)

5.0 Description of Activities

5.1 Past human use

The Larkin Family have quarried Galway Granite and sand in Shanapheasteen since the 1930s. It was this quarry that supplied granite stone and sand that enabled the construction of the road and bridge into this townland and later was used for construction of houses. During the 1930s and 40s the County Council used the stone and daub to build roads into the bog roads nearby into Finnaun. The quarry also was the source of material for the forestry roads built during the 1950s. The quarry was leased out during the 1960s by the Larkins and this arrangement lasted in to the 1970s. During the oil crises in the 1970s Gaeltarra Éireann funded the local Co-Op na nOileáin to build new roads into the Fionnaun turf cutting area and the quarry was used as a supply area for stone. Joe Larkin (father of the present owners) took over the quarrying in the 1980s supplying crushed rock for sites in the region he continued until he passed the quarry to his sons in the 1990s.

5.2 Current activities

The current business plan is to supply high quality building and cut stone products. Products include garden ornaments and artistic stonework.

The current method of extraction current quarrying is carried out using expanding plugs in order to get a clean break of rock. The maximum extracted in a single year is estimated at 10,000 tonnes or 500 loads. Many large boulders are already quarried and on site a significant part of the work can be carried out on previously quarried materials. The surface of the quarry is being worked and an area 50m (length) * 30m (depth) * 3m width is estimated as the area that will be quarried annually over the next 5 year period.

5.3 Proposed Development

Connemara Granite in 2010 sought planning permission to build the following; Industrial Building for storage and dry cutting of granite and a building with office, canteen, toilet and changing rooms and car parking place. The aim is to provide improved conditions for the two employees as stone shaping and cutting could subsequently be carried out indoors and the canteen and office space will allow them facilities to eat and carry out office work in line with existing health and safety regulations.

6.0 Environmental Information

6.1 Ecological Features

6.1.1 Habitats

The habitats found on site are classified based on walkover surveys. The habitats recorded are classified in accordance with the guidelines set out in 'A Guide to Habitats in Ireland' (Fossitt, 2000), which classifies habitats based on the vegetation present and management history. The habitats found within and adjacent to the proposed works are listed below

Active quarries and mines ED4

The main quarry surfaces, piles of loose rock and associated roadways and work areas are classified in this category. Here levels of disturbance are so high that colonisation by plants and animals is almost entirely prevented.

Recolonising bare ground ED3

This category is used where bare or disturbed ground, derelict sites or artificial surfaces of tarmac, concrete or hard core have been invaded by herbaceous plants. In this case the recolonising bare ground is mainly being colonised by rushes (*Juncus* spp).

HH3 Wet heath /PB3 Lowland blanket bog

The majority of the land to the north and east of the site is wet heath grading to blanket bog . Here it is dominated by Purple Moor-grass (*Molinia caerulea*) Other common species found include Heathers (*Calluna vulgaris*), Bell Heather (*Erica cinerea*). Bog Asphodel (*Narthecium ossifragum*), White Beaksedge (*Rhynchospora alba*) and *Sphagnum* mosses. Some of this area has been formerly cut for turf.

6.1.2 Flora and Fauna

The following information is sourced from published information and from the NPWS conservation ranger Aonghus ODomhnaill

<u>Flora</u>

No plant species of importance are known from the 10sqkm within which this proposed development is sited.

Fauna

The general area is important for birds of conservation concern

- Greenland White-fronted Geese an Annex I species of the Birds Directive are known from the Connemara Bog Complex SAC. These are not associated with the Shanapheasteen townland but are mainly concentrated further south at Tullynasleeog and Glenachmurach.
- Red Grouse are present throughout the area but in low concentrations.
- Merlin an Annex I species of the Birds Directive are known breeding in the general area.

The adjacent river is of key ecological importance. It is known to support populations of Salmon and Trout. Otter are common in the area and would be expected to use this river system.

The Otter and Salmon are listed on Annex II of the EU Habitats Directive

4.1.3 Significance of Ecological Findings

The main finding of significance is that protection of the River is paramount as it supports population of the Annex II species Salmon and Otter.

6.2 Physical Features

Climate

The area experiences a mild oceanic climate that can be summarised as wet and windy, with an annual temperature range of about 8ºC. The close proximity to the Atlantic Ocean gives rise to high precipitation. The number of rain days (1mm or more) is approximately 193 mm (per year), with more than 5mm of rainfall falling 80 days a year. The mean annual rainfall is in the region of 1600mm of rain.

Geology & Geomorphology

The geology of the area is dominated by Blue Granite.

Soils & Soil Processes

The soil is mainly peat based grading to slightly more mineral in the area designated as SAC within the site boundary.

6.3 Hydrology and Water quality

Hydrology/ water quality

The EPA does not monitor the adjacent river (www.EPA.ie). This river adjacent to the quarry is an unnamed tributary of the Cashla River. It flows from Lough Aclogher south to Lough Charraig into Lough Fermoyle which is a salmonid fishery.

Lough Fermoyle is monitored by the EPA it was last sampled in 2003 and is classified as unpolluted or Oligotrophic. It is a recognised game fishery.

Flooding

A search of the Office of Public Works National Flood Hazard Mapping website, www.floodmaps.ie, was performed to obtain information on flooding history in the vicinity. No flooding events were recorded in the vicinity of the site.

7.0 Management Framework

In order to write a management plan for this site the main conservation objectives have first to be identified. These have been identified relative to the Special Area of Conservation which lies both within and adjacent to this land parcel.

7.1 Main conservation objectives

1. To maintain the Annex II species, in the adjacent river, for which the cSAC has been selected at favourable conservation status: Salmon; Otter.
2. To maintain and enhance the water quality of the adjacent river within the SAC Connemara Bog Complex 2034
3. To maintain and enhance the ecological value of the SAC habitat within the land parcel boundary.

7.2 Main management issues

1. There is a risk of pollutants entering the adjacent salmon river as a result of activities within the land parcel.
2. Risk of water pollution from unvegetated heaps of spoil over a large portion of the site.
3. Water management on site is key to preventing water pollution in the river.

7.3 Management Strategies

There are three main management elements that are applicable to this quarry. Many of the management elements such as noise and dust prevention and control are not applicable as blasting is no longer practised as part of the operations.

Surface Water Control

The current mechanism for managing water on site is to collect it within the active area of quarrying where it collects as this is the lowest point within the land parcel and water naturally drains to this point. The water is pumped by pipe unto a large area of wet heath/blanket bog. Most of this water enters the “drain” on the map (B2). This drain is overgrown and water observed leaving this drain was clear in appearance.

Strategy 1: To manage and control all flows of surface water

- In line with current practice no water will be abstracted from the river.
- In line with current practice no water will be used in the quarry operations.
- No excavation below the water table is proposed.
- Water which may contain silt / other pollutants will be collected in a single area at the quarry base and pumped into the soakaway. Areas either side of the main drain will be alternately used as a soakaway area. This drain is now completed vegetated and forms part of the area used for filtration.
- There will be control of run-off from pits, quarries, spoil heaps, embankments and all other parts of sites, including access roads and wheel-wash facilities. All water will be collected at quarry base and directed to the existing soakaway.
- Clean water which has been filtered through the peat soakaway must be piped under the roadway so as to remain clean reaching the river (C2 – see attached map)
- A petrol interceptor will be put in place within the water collection area (this forms part of planning ref 10/702)
- Sewage treatment will be provided on site as per planning application 10/702
- The operators will comply with the requirements of the Water Pollution Acts, 1977-1990. The relevant local authority, Fisheries Board and the Department of Environment, Heritage and Local Government will be consulted about any alterations to existing practices.

Landscape and restoration

Erosion of soil (and any other material) should be limited by rapidly vegetating exposed areas, planting the surfaces of overburden and topsoil mounds, progressively restoring worked-out areas (where practical) and limiting the areas of topsoil/overburden stripping exposed at any one time. Adequate margins/buffer zones should be left around watercourses, river corridors and other sensitive areas; spoil heaps should be designed to be stable in periods of very wet weather. DoEHLG 2004

Only a small proportion of this site is being actively worked. A large area has been worked in the past and daub removed for road building by various bodies. There is a significant area which is unworked and requires restoration. These areas are exposed gravel and peat and are a potential pollution source.

Photo 2: Exposed rock, gravel heap

Strategy 2: To consolidate and revegetate spoil heaps.

Spoil heaps will be consolidated to reduce their surface area (C1). Reduction of the surface area would limit their capacity to potentially cause pollution. Depressions in existing recolonised spoil heaps may be filled.

Vegetation that has colonised this loose ground is valuable in stablising this material. Before any movement of earth is undertaken the vegetation should be removed and put to one side. After consolidation of material this vegetation should be used as a covering to help the long term restoration of these areas. Vegetation cover will protect from run off in the long term.

Strategy 3: To import soil where required

Throughout much of this quarry the spoil heaps are mainly of daub and small rocks. There is little soil cover to facilitate revegetation. Soil will need to be imported to enable vegetation to establish. This work must be carried out in dry weather so as to reduce the risk of pollution to the river. Reseeding may be carried out where required (C1 and C5).

Care must be taken when importing soil for restorative purposes that it is taken from a source free of invasive species such as Japanese knotweed, Rhododendron and Gunnera.

Protection of the River

Extraction and quarrying activities have the potential to impact on areas of valuable habitat, including (Habitats Directive) Annex I priority habitats…Habitats outside the quarry site can be impacted on indirectly by dust deposition, alteration to groundwater or surface water supplies, or as a result of run-off or siltation. In each case, it is imperative that the developer has given appropriate consideration to designated habitats, and has designed the workings in an environmentally sensitive manner. DoEHLG 2004

In this case the Quarry existed long before the river was designated an SAC . The developer wants to ensure that the quarry operations have no negative impact on the river and the following strategies and measures are being undertaken with that objective in mind.

Strategy 4: Extend the Berm to protect the SAC river

The main berm (C5) is partly constructed at present. It is very close to the river in places it is less than 5m from the river bank.

The proposal is to reduce the berm in height and reduce the steepness of slope as this may contribute to run off. The large boulders at the base are to be removed as these will fail to become vegetated. Some soil may need to be imported to accelerate vegetation of this berm.

The berm is to be extended as indicated on the map. A Terram screen is to be put in place between the berm and the river to catch silt while the berm becomes vegetated (see attached drawings). The Terram screen must be put in place before any works on the berm commence.

Photo 2: Berm in Oct 2010 (note proximity to the river and steepness)

Strategy 5: Fill in of pond and construction of second mini berm

There is small holding pond as indicated on the map (C3). The overflow from this pond enters a small stream which is the boundary of the SAC and this ultimately discharges into the river. During dry weather it dries and at this stage it may be filled. A Terram screen may need to be put in place to prevent run off and siltation.

A small or mini berm already exists in this location opposite this pond. Currently overflows, from this pond, cut through a breach in this berm to enter the drain. This "berm" will be repaired and extended so that water can be directed towards the main collection point for eventual filtration through the soakaway(C4).

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Protection of the SAC land within the Land parcel

Many SAC rivers have buffer zones as a measure to regulate activities in that area and to ultimately protect the river.

Strategy 6: Non intervention

The SAC lands will not be interfered with in any way (A1 and A2). Nor will they be used for any activity or purpose. The zone A3 will also be managed by non intervention

Ecological Monitoring

Success of a project can only be judged relative to it baseline information therefore monitoring before and during a project is critically important.

Strategy 7: Monitor Q values and Annex II species

This river is known to be a salmon river but it is not monitored by the EPA. The Q Value system describes the relationship between water quality and the macroinvertebrate community in numerical terms. Q5 waters have high diversity of macroinvertebrates and good water quality, while Q1 have little or no macroinvertebrate diversity and bad water quality. Intermediate values, Q1-2, 2-3, 3-4 etc denote transitional conditions (source EPA.ie). This river should have its Q value measured at a minimum of 4 points along its length. Points of study are indicated on map (E1-4). This must be carried out twice during the period of the management plan at the beginning and end of the 5 year period.

Ideally, Salmon and Otter use of the river should be established during the period of the plan. This may be achievable in cooperation with statutory bodies NPWS and Fisheries Board.

Waste Management Policy

Strategy 8: Continue to implement Waste Mangement Policy

Connemara Granite Teo.

- All waste generated in quarry is segregated to appropriate bins as directed by Connemara Granite Teo. on a day to day basis. Do not contaminate segregated bins (wood, metal, etc) with mixed waste. The site and surrounding areas will not be littered.
- No storage fuel tanks will be retained in the quarry, all plant must be refuelled and serviced on a designated Hard Standing Area.
- Our quarrying processes will be dry so we do not require water, so no dirty water will be created in processing or splitting of stone.
- Documentation to be supplied to Connemara Granite Teo. detailing the carrier and destination of any waste removed off site by waste contractors.
- No burning will be allowed at any time.
- All containers will be labelled to identify contents.
- Only properly certified, self bunded metal units will be used for lubricants.
- All liquid containers, static and mobile fuel units, generator and associated hoses will be contained in proper impermeable bund, or contained in spill pallet / tray
- Appropriate hard standing area to be used when refuelling.
- An "Oil Only" Spill Kit and a 1 ton stockpile of sand will be retained and available near all fuelling points AND near water sump for use in the event of an emergency spillage.
- A specific bin for "Oily Rags" must be used for disposal of oily materials in the quarry. Only waste contractor can dispose of these and must supply documentation.
- Servicing of machines must only take place in designated area
- Housekeeping and storage to be maintained to a high standard at all times.
- All site machinery to be shut down when not in use.
- All haul roads will be maintained in a clean and sound state and be subject to strict speed limits.
- Wheelwash water will not be allowed to flow uncontrolled, will be directed to a petrol interceptor treatment facility in order to remove contaminants and render it suitable for the receiving environment. It will be then directed to a settlement pond within the impermeable quarry floor for stilling as required to facilitate efficient sedimentation of solids out of all soiled water.
- Water pumped from settlement ponds will be screened and filtered.
- When not in use, all equipment (lights, heaters, plant and equipment) will be switched off.
- Purchase only necessary materials to the proper specification.

Environmental Management Systems (EMS)

A well-prepared Environmental Management System is recognised by Connemara Granite Teo as a valuable tool to assist them to meet current and future environmental requirements and challenges.

Strategy 9: Continue to develop EMS

Connnemara Granite will continue to work on Quality Control Systems and to develop their Environmental Management System on site. They will seek expertise where required.

Planting

No planting should be carried out within the SAC and this area should be allowed develop natural vegetation.

Strategy 10: Planting for Screening

Otherwise suitable trees are Alder, Ash and Willow sourced locally or derived from suitable native seed sources from within Ireland. Large scale ground preparation should not be carried out the recommended method is pit planting of trees. No fertilisers should be used.

Implement plan

This management plan has been written on the assumption that their will be no blasting for period of the plan.

Connemara Granite will seek to ensure that the aims of this conservation plan are achieved through: liaison with the relevant authorities, experts and interested parties.

8.0 Zoning

Zoning is the division of a land parcel into a number of sub-units. There are four types of zones identified A, B, C and D within the site. Zone E is an indicator of location of monitoring points selected for baseline study . The relevant strategies are listed for each.

A Natural Zone – no change required (Green)

Strategies	Areas Zoned in this manner
Strategy 6: Non intervention	SAC

A1: SAC Area to the south of the Site

A2: SAC buffer on river

A3: Wet heath /blanket bog

B Semi natural Zone – no change required (black)

Strategies	Areas Zoned in this manner
Strategy 1: To manage and control all flows of surface water	Soakaway

B1: Soakaway

B2: Main drain for filtration

C Intervention Zone - requiring specific action (Red)

Strategies	Areas Zoned in this manner
Strategy 2: To consolidate and revegetate spoil heaps. Strategy 3: To import soil where required Strategy 4: Extend the Berm to protect the river Strategy 10: Planting for screening	Spoil heaps Pool Berm
Strategy 5: Fill in of pond and construction of second mini berm	Mini Berm

C1: Spoil heap consolidation

C2: drain/culvert under road

C3: Standing water pond

C4: Mini Berm

C5: Main Berm

D Industrial zone – requiring ongoing management (Blue)

Strategies	Areas Zoned in this manner
Strategy 1: To manage and control all flows of surface water Strategy 8: Continue to implement Waste Mangement Policy Strategy 9: Continue to develop EMS	Quarry (active faces and water collection area)

D1: main area being quarried

D2: Buildings

E Monitoring points on River (outside Site) Red arrows

Strategies	Areas Zoned in this manner
Strategy 7: Monitor Q values and Annex II species	River

E 1-4 Sampling points for Q values

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Appendix SITE SYNOPSIS SITE NAME: CONNEMARA BOG COMPLEX SITE CODE: 002034

The Connemara Bog Complex is a large site encompassing the majority of the south Connemara lowlands, Co. Galway. The site is bounded to the north by the Galway- Clifden road and stretches as far east as the Moycullen-Spiddal road. Because of its large size the site contains a wide range of habitats. Extensive tracts of western blanket bog form the core interest, but there are also areas of heath, woodland, lakes, rivers and streams. The Connemara Bog Complex is underlain predominantly by various Galway granites, with small areas along the northern boundary of Lakes Marble, schist and gneiss. The Roundstone bog area has a diverse bedrock geology composed mainly of the basic intrusive rock, gabbro. An area of rock, possibly Cambrian in age, called the Delaney Dome Formation occurs in the north-west of this area. Gabbro also occurs in the Kilkieran peninsula and near Cashel. The whole area was glaciated in the last Ice Age which scoured the lowlands of Connemara. The site is a candidate SAC selected for active blanket bog and lagoons, both priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for floating river vegetation, wet and dry heath, alkaline fen, transition mires, lowland oligotrophic lakes, dystrophic lakes, Rhynchosporion, old Oak woodlands, *Molinia* meadows and reefs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive - Atlantic Salmon, Otter, the plant Slender Naiad and the Marsh Fritillary butterfly. The main habitat within this site is lowland Atlantic blanket bog. Most of the area is covered by blanket peat greater than one metre in depth. The Connemara Bog Complex is characterized by areas of deeper peat surrounded by rocky granite outcrops, covered by heath vegetation. The deeper peat areas are often covered by lakes and river systems. A mosaic of different communities therefore exists. These include, hummock/hollow systems, inter-connecting pools, Atlantic blanket bog pools, flushes, transition and quaking mires, freshwater marshes, lakeshore, lake and river systems. The key plant species of lowland blanket bog are Black Bog-rush (*Schoenus nigricans*), Purple Moor-grass (*Molinia caerulea*), Cross-leaved Heath (*Erica tetralix*), Deergrass (*Scirpus cespitosus*), Common Cottongrass (*Eriophorum angustifolium*), Bog Asphodel (*Narthecium ossifragum*), White Beak-sedge (*Rhynchospora alba*) and Bog Moss (*Sphagnum*) species. Small patches of deciduous woodland and a large number of oligotrophic lakes add to the habitat diversity of the site. Also occurring within the site are several lagoons (a type of brackish lake) which display considerable variations in size, depth and salinity, resulting in a diverse assemblage of floral and faunal communities. Nine legally protected plant species occur within this site (Flora (Protection) Order, 1999): Forked Spleenwort (*Asplenium septentrionale*), Parsley Fern (*Cryptogramma crispa*), Bog Hair-grass (*Deschampsia setacea*), Slender Cottongrass (*Eriophorum gracile*), Bog Orchid (*Hammarbya paludosa*), Slender Naiad (*Najas flexilis*), Heath Cudweed (*Omalotheca sylvatica*), Pillwort (*Pilularia globulifera*) and Pale Dog-violet (*Viola lactea*). The rare and threatened species, Dorset Heath (*Erica ciliaris*), Mackay's Heath (*Erica mackaiana*) and Green-winged Orchid (*Orchis morio*) also occur within this site. All the above species are listed in the Irish Red Data Book and Slender Naiad is listed on Annex II of the EU Habitats Directive. The site is of national importance for wintering populations of Greenland Whitefronted Geese. Small

flocks (up to 30) are nowadays found on Roundstone Bog and also use the bogs between Recess and Maam Cross. In April 1989 a synchronised ground and air census of the Connemara bogs located 7 flocks of White-fronts, totalling 134-137 birds. In 1991/93 wintering numbers were considered to be not much more than 60 birds. There is an internationally important breeding area for Cormorants at Lough Scannive with 218 pairs present in 1985 in a colony which is known to have existed pre-1968. Golden Plover, a species listed on Annex I of the EU Birds Directive, nests at up to four locations in the site, with a maximum of two pairs noted at any one location. Another Annex I species known to be present in the site is Merlin. Lough Naskanniva is an important inland breeding site for Common Terns (up to 60 pairs in 1977 and 1992) and Choughs, both of which are also Annex I species under the EU Birds Directive. Atlantic Salmon, listed under Annex II of the E.U. Habitats Directive occurs in many of the rivers within the site. The Cashla and Ballynahinch systems are good examples of western acidic spate rivers which support the species. Good spawning and nursery grounds for the species occur in these systems. Arctic Charr occurs in a number of lakes within the site: Ballynahinch Lake, Glenicmurrin Lough and Lough Shindilla. The species has also been reported from Lough Oorid and Lough Glendollagh in the past, but has not been recorded from these lakes in recent years. Arctic Charr is listed in the Irish Red Data Book as being threatened. Otter has been recorded as occurring in the Connemara Bog Complex. Irish Hare, another mammal listed in the Red Data Book, occurs on the site. Common Frog breeds on the site. It is listed in the Irish Red Data Book as internationally important and on Annex V of the EU Habitats Directive. The main damaging operations and threats in the Connemara Bog Complex are peatcutting, overgrazing and afforestation. Extensive peat extraction using 'Difco' machines has become common in the region in recent years and cutting by excavator and hopper is also increasing. The handcutting of peat is less threatening as it is usually on a much smaller scale but it still needs to be controlled within the site. Afforestation also threatens the site. Forestry affects habitat uniformity, lake and river catchments, nesting and feeding habitats for animals, and landscape integrity. Overgrazing and poaching by sheep and cattle is a widespread problem within the site, with erosion of peat ensuing. The above operations are the most extensive but other threats and potentially damaging operations include land drainage and reclamation, fertilization, quarrying and dumping. In summary, the Connemara Bog Complex encompasses a large area of relatively undamaged lowland Atlantic blanket bog of high conservation significance to Ireland as well as Europe. The site has nine protected and threatened Irish Red Data Book plant species. The site is internationally important for Cormorants and nationally important for Greenland White-fronted Geese and contains nesting sites for Golden Plover. The site supports several bird species listed on Annex I of the EU Birds Directive and a range of plant and animal species listed on Annex II of the EU Habitats Directive. 13.12.2005

ASTER ENVIRONMENTAL CONSULTANTS LTD

Sheannapheasteen Quarry Management Plan Compliance Report

To be Read in Conjunction with

The 5 Year Management Plan for
Sheannapheasteen
Quarry 2011-2015

August 2012

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Overall Summary

In summary the management strategies for Sheannapheasteen Quarry as specified under the five year management plan are currently being implemented. It is estimated that 70-80%% of the actions specified in were complete or underway at the site inspection July 2012. Progress is ongoing and all actions are expected to be completed well ahead of the 2015 target.

Surface Water Control

Strategy 1: To manage and control all flows of surface water

Complete

- Water which may contain silt / other pollutants is now collected in a single area at the quarry base and pumped into the soakaway. Areas either side of the main drain are alternately used as a soakaway area. This drain is now completed vegetated and forms part of the area used for filtration. (Note 1)

- Clean water which has been filtered through the peat soakaway has been piped under the roadway so as to remain clean on reaching the river (C2 – see attached map)

Photo 1: Clean water piped under road.

Ongoing

- There will be control of run-off from pits, quarries, spoil heaps, embankments and all other parts of sites, including access roads and wheel-wash facilities. All water is collected at quarry base and directed to the existing soakaway.

- The operators are complying with the requirements of the Water Pollution Acts, 1977-1990. The relevant local authority, Fisheries Board and the Department of Environment, Heritage and Local Government will be consulted about any alterations to existing practices.

Planned (subject to Planning)

- A petrol interceptor will be put in place within the water collection area
- Sewage treatment will be provided on site as per planning application

  10/702

Note 1: The Inland Fisheries Board, since preparation of the management plan, has requested that the main drain is divided into a series of ponds to enhance settlement of suspended soilds; this is ongoing.

Landscape and restoration

Strategy 2: To consolidate and revegetate spoil heaps.

Complete and ongoing

Spoil heaps have been consolidated to reduce their surface area (C1). Depressions in existing recolonised spoil heaps have been filled. Existing vegetation has been used to stablise mounds where possible. Approximately 70% of this work has been carried out since early 2011. Heaps have been consolidated and vegetation is beginning to establish.

Photo 2: Spoil heaps have been levelled to reduce run off.

Strategy 3: To import soil where required

Planned

No soil has been imported to date but where there is excess topsoil/peat in areas of the site this has been carefully used to help re-establish vegetation.

Protection of the River

Strategy 4: Extend the Berm to protect the SAC river

Complete

The main berm (C5) has been greatly reduced in height as per management plan, thus the steepness of the slope has been reduced and the large boulders at the base have been removed. This will help reduce run of from the berm.

Photo 3: Note the lowered height of the berm

A terram screen has been put in place between the berm and the river to catch silt while the berm becomes vegetated.

Photo 4: Terram in place along river

Planned
Some soil may need to be imported to accelerate vegetation of this berm. The berm is to be extended as indicated on the map.

Strategy 5: Fill in of pond and construction of second mini berm

Complete
The small pond indicated on the map (C3) has been filled and the surrounding area levelled.

Planned
A Terram screen may need to be put in place to prevent run off and siltation reaching the river. A small or mini berm already exists in this location opposite this pond. Currently overflows, from this pond, cut through a breach in this berm to enter the drain. This "berm" will be repaired and extended so that water can be directed towards the main collection point for eventual filtration through the soakaway(C4).

Protection of the SAC land within the Land parcel

Strategy 6: Non intervention
Ongoing
The SAC lands will not be interfered with in any way (A1 and A2). Nor will they be used for any activity or purpose. The zone A3 will also be managed by non intervention

Strategy 7: Monitor Q values and Annex II species
Planned
The Q values are to be measured at 4 points along the river.

Waste Management Policy

Strategy 8: Continue to implement Waste Mangement Policy

Ongoing

The waste management policy is integral to the workings of the Quarry and is ongoing.

Environmental Management Systems (EMS)

A well-prepared Environmental Management System is recognised by Connemara Granite Teo as a valuable tool to assist them to meet current and future environmental requirements and challenges.

Strategy 9: Continue to develop EMS

Connnemara Granite will continue to work on Quality Control Systems and to develop their Environmental Management System on site. They will seek expertise where required.

Planting

No planting should be carried out within the SAC and this area should be allowed develop natural vegetation.

Strategy 10: Planting for Screening

Planned

No planting has taken place to date

Connemara Granite will continue to ensure that the aims of this conservation plan are achieved through: liaison with the relevant authorities, experts and interested parties.

Appendix 7

Dust Results

Complete Laboratory Solutions
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Client	:	Norianna Kennedy McCarthy Keville O'Sullivan Block 1 GSFC Moneenageisha Road Galway	Report No. Date of Receipt Start Date of Analysis Date of Report Order Number Sample taken by	: 191434 : 15/04/2013 : 15/04/2013 : 23/04/2013 : : Client

CERTIFICATE OF ANALYSIS

Lab No	Sample Description	Test	Result	Units
437521	D1.	Settleable Dust (Bergerhoff Method)	104	mg/sq.m/day
437522	D2.	Settleable Dust (Bergerhoff Method)	208	mg/sq.m/day
437523	D3.	Settleable Dust (Bergerhoff Method)	67	mg/sq.m/day

Approved by: Barbara Lee

Barbara Lee
Environmental Scientist

See reverse for Test Specifications

Test	Specification	Subcontracted	CLS 17025 Status	Sub 17025 Status
Settleable Dust (Bergerhoff Method)	CLS 31	No	No	No

Laboratory Analysis, Sampling, Technical Backup, Training, Food Safety Program Auditing and Monitoring are all ISO 9001:2008 certified