



Further Information Response (ABP-318793-24 P. Ref. 23/169)

Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan

P&S Civil Works Ltd.

Corlurgan Business Park, Ballinagh Road, Cavan Town, Co. Cavan

Prepared by:

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SLR Project No.: 501.064821.00001

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11 June 2026

Revision: Final

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R0	24 February 2026	KR		
R1/R2	22 May 2026	KR/LH	PG/SMcD	
Final	11 June 2026		LH	SMcD

Basis of Report

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Introduction

By letter dated 16th February 2026, An Coimisiún Pleanála requested further information in respect of the appeal referenced ABP-318793-24. The appeal relates to a proposed quarry extension for which planning permission (previously granted by Cavan County Council (CCC) in 2013 under P. Ref. 12/101) has lapsed. Planning permission was granted by CCC for continuation of the quarry extension in November 2023, but a third-party appeal was made by An Taisce. The appeal has been under consideration since then and the Applicant is glad of the opportunity to provide further information as requested.

We hereby submit our response to the queries raised, with responses provided in the same order as they were requested in the request letter.

The information contained in this Further Information response is supplementary to details provided in the original EIAR (and in particular Chapter 5 which has been updated as requested). There are no new material proposals and none of the assessment outcomes are changed. There is also no change to the assessment of interactions of the EIAR, nor to the information submitted in the Non-Technical Summary of the EIAR.

1.0 Item 1: Historic Monitoring data

Submission of copies of Historic monitoring data undertaken during the operational phase of the existing quarry at this location as detailed below. This data should cover a period of 3 years:

1.1 Item 1 (a) : Discharge Licence Monitoring Results

Copies of Section 4 Discharge Licence water quality monitoring results submitted to Cavan County Council during the operational phase of the quarry at this location. The data should cover a period of 3 years while the quarry was operational and include all upstream, downstream and discharge monitoring results. Any details relating to discharge flow rates during this period should also be submitted.

Response

Surface Water Quality

Copies of water sampling results from the outfall discharge point provided by P&S Civil Works Ltd. to Cavan County Council (CCC) as per the requirement of Discharge Licence SS/W005/11 granted by CCC in February 2012 are included in **Appendix A**. The discharge quality results cover the years 2012 and 2013 and are stamped as received by CCC on 12 March 2013 and 8 April 2014, respectively.

The parameters tested for in the discharge were:

- pH;
- BOD;
- COD;
- Total Suspended Solids;
- Nitrate (as NO₃);
- Mineral Oils;
- Diesel and Petrol Range Organics; and
- Benzene, Toluene, Ethylbenzene, Para and Meta Xylene and Ortho Xylene.



The 2012 sampling results were from the January/February, April/May, August/September and October/November periods. All samples were within discharge licence limits, apart from one instance in August/September where a value of 86 mg/l was recorded for Total Suspended Solids, compared to 18 mg/l and 20 mg/l in the preceding and following sampling periods, respectively. The limit set in the discharge licence for Total Suspended Solids is 30 mg/l. The available monitoring suggests that the August/September result of 86 mg/l is an outlier and it may have been caused by an intense localised storm event at the site, typical of this time of year and which may not necessarily be reflected at the closest Met Éireann measuring stations.

The 2013 sampling results were from the January/February, May/June, August/September and November/December periods. All samples were within discharge licence limits. Notes of the weekly visual inspections of the discharge outfall, carried out by the quarry operator in 2013, were also included within their submissions to CCC.

Records relating to monitoring data from the quarry were also recently requested (in February 2026) from the Environment section of CCC. In response to the request by P&S Civil Works Ltd., Laboratory Analysis Records from Cavan County Council's lab were provided dating back to February 2013 and February 2014, and these are also included in **Appendix A**. The parameters tested by CCC were all within the discharge licence limits.

In addition to the 2012, 2013 and 2014 monitoring data described above, **Appendix A** contains records of surface water monitoring data from December 2010, January 2011, August/September 2011 and January/February 2012, prior to the grant of planning permission for the quarry extension P. Ref. 12/101 (the continuation of which is the subject of this planning appeal) and issuing of the discharge licence in February 2012.

The discharge licence stipulated the frequency of sampling to be undertaken, as per Schedule 1.2 of Discharge Licence SS/W005/11:

- *shall be taken quarterly during the first year;*
- *samples shall be taken annually in subsequent years, if it can be shown that the discharge complied with the provisions of this licence during the previous year; and*
- *if two quarterly or annual samples fail in succession, samples must be taken quarterly in the year that follows*

Given that the sampling data described above was shown to be compliant with the provisions of the discharge licence, the frequency of sampling was deemed to be appropriate while the quarry was operational.

Flow Monitoring – Quarry Pause

There is no flow monitoring data available because, as noted under Item 1(b), the economic conditions in 2012 prevented the Applicant from commencing extraction works in the proposed quarry extension, for which a discharge licence had effectively been obtained.

Although planning permission had been granted for the proposed extension in January 2013, the Irish Government's capital expenditure plan was scaled back in accordance with a financial framework entitled '*Infrastructure Investment Priorities 2010-2016*' in response to the economic downturn in the country following the 2008/2009 Global Financial Crisis. Given that the resource underlying the Mullymagowan Quarry is high Polished Stone Value (PSV) and a desirable aggregate for road and local authority projects, the demand for its products declined and it became uneconomic for the Applicant to commence the quarry extension.

Notwithstanding this, the water discharge licence was only required for the discharge of rainwater and a small volume of groundwater accumulating in the quarry void. The calculations



included in Table A of Discharge Licence SS/W005/11 indicate an average daily discharge rate of 554 m³/day.

Investigations carried out in support of the application for the Discharge Licence SS/W005/11 included manual flow gauging on two surface water features in the application site.

Manual Flow Gauge Location 1 (FW1) and Flow Gauge Location 2 (FW2) are indicated on **ACP-FI Fig-1 in Appendix D**. On 2 February 2010, flow velocity at FW1 was recorded as 2,529.9 m³/day or 105.4 m³/hour and flow velocity at FW2 was recorded as 118.99 m³/day or 4.96 m³/hour.

The results of the flow gauging supported conclusions reported in previous planning application documentation that the discharge flows from the application site would be low relative to the observed flows in the receiving waters.

Based on site investigation works carried out during the drilling of two onsite wells in 2003 and a detailed groundwater assessment including site investigation works carried out in 2010, groundwater volumes at the site were identified as minimal. Site investigations, well recharge, slug testing and analysis of the underlying aquifer properties also concluded that groundwater flow into the proposed quarry extension area would be minimal, and less than c. 10 m³/day of groundwater dewatering would be required from the proposed quarry void.

1.2 Item 1 (b): Noise and Dust monitoring

Results of noise and dust emission monitoring undertaken on site during the operational phase of the quarry and submitted to Cavan County Council for the same period.

Response

Appendix B contains details of dust monitoring undertaken at Mullymagowan Quarry over the period December 2011 to February 2012, and noise monitoring undertaken at the quarry in February 2012 (when the quarry was operational). The results of both sets of monitoring were within the acceptable standard limits for both noise and air emissions.

Appendix B also includes previous dust and noise monitoring data from previous planning application documentation between the years of 2006 and 2009 when the quarry was operational. This comprises all of the information available to the Applicant in terms of historic monitoring. Attempts have been made to obtain information from the independent consultants that were commissioned to undertake the monitoring, but the Applicant has been advised that owing to the passage of time, the data is no longer available.

As set out under Item 1(a), the economic conditions in 2012 meant that the Applicant was unable to commence the extraction works in the quarry extension, that had been granted permission under P. Ref.12/101 in January 2013. Site operations remained intermittent until they were paused in 2014/2015. The Applicant advises that they are not aware of previous complaints from neighbours to CCC in relation to noise or dust emissions during the previous operation of the quarry.



2.0 Item 2 (Water): Biological Q-Survey

Submission of details and results of the baseline biological Q survey of receiving waters undertaken in January/February 2024 as referred to within your response to the 3rd party appeal dated 1st February 2024.

Response

Appendix C contains the report of the Baseline Biological Q Survey undertaken in January/February 2024, along with correspondence from An Coimisiún Pleanála advising that it could not accept unsolicited information at that time during its consideration of the appeal.

3.0 Item 3 (Water): Revised Drawings

Submission of revised drawings which clearly outline existing drainage ditches/watercourses on site which are describes within the EIAR and provide an assessment of the impact of the proposed development on same.

Response:

Appendix D consists of a revised drawing **ACP-FI Fig-1** showing the existing watercourses (field drainage ditches and streams) in the vicinity of the application site. **ACP-FI Fig-1** has been produced based on a combination of publicly available mapping resources (as referred to below), and site-specific knowledge of the Applicant, as well as site surveys undertaken by SLR staff during the course of the EIA process and subsequent assessments requested as Further Information by CCC and An Coimisiún Pleanála.

Appendix D indicates a watercourse, referred to locally as the Mullymagowan Stream, running north from the eastern boundary of the proposed quarry extension area. The watercourse is also shown on the EPA mapping portal¹, where it is shown as connecting to the Corraneary River² (WFD Code IE_NW_36S020075, Segment 36_1263). Further downstream the watercourse is named the Stradone_010 River (WFD Code IE_NW_36S020075, Segment 36_1381) and further downstream it flows into the Stradone-020 River (WFD Code IE_NW_36S020200)³.

The Mullymagowan Stream is fed by the following surface water features that are indicated on **ACP-FI Fig-1**:

- A path of historical field drains (Field Drainage Ditches 1 and 2) which are noted on historic Ordnance Survey mapping (Geohive). The old field drains as indicated on **ACP-FI Fig-1** are not generally active, except for at times of intense rainfall or during prolonged wet periods when there can be small flows in them.
- A discharge drainage channel located to the east of the landholding and running along the eastern boundary of the application site for the quarry extension. Water from the previous quarry void (when operational) was pumped from a sump on the quarry floor to this drainage channel.

¹ <https://gis.epa.ie/EPAMaps/>

² The original EIAR referred to the Corraneary River as the Stradone River to avoid confusion as they share the same WFD code and the Corraneary River is not widely referred to.

³ https://catchments.ie/wp-content/files/subcatchmentassessments/36_9%20Laragh_SC_010%20Subcatchment%20Assessment%20WFD%20Cycle%202.pdf



The field drainage ditches are located outside the proposed screening berm for the proposed quarry extension and will be unaffected by the proposed quarry extension. The discharge drainage channel as indicated on **ACP-FI Fig-1** will remain in place and in use for the proposed quarry extension as set out in the February 2023 EIAR.

The assessment and conclusions within the original EIAR Hydrology and Hydrogeology Chapter with respect to the potential impact on water remain valid.

4.0 Item 4 (Noise): Assessment

It is considered that insufficient information is provided within Chapter 10 of the EIAR and application to enable a detailed assessment of potential noise and vibration impacts of the operational phase of the proposed development on the existing residential property to the northwest of the application site (identified as R2 within Figure 10.1 of the EIAR). You are required to submit further detailed consideration and assessment of noise and vibration impacts associated with the operational phase of the proposed development on this property.

4.1 Item 4 (a): Mitigation Measures

In terms of noise impact, it is noted that Table 10.2 of the EIAR entitled "Cumulative Operational Noise Levels" identifies a Major Long-Term impact on this property in the absence of mitigation measures. Section 10.80 of the EIAR refers to measures to reduce noise impacts of plant associated with the development. However, these measures are not specifically identified or assessed within the EIAR.

You are required to submit details of specific mitigation measures proposed to negate against potential noise impacts on this property. Sound Power Levels of all existing and proposed plant and machinery should be provided and considered and details of any mitigation measures detailed. Details of any existing and proposed screening/berms should be provided and assessed. Revised proposals shall be submitted if necessary.

4.2 Item 4 (b): Vibration Assessment

Given the proximity of the proposed quarry area to the property to the northwest, you are required to provide an assessment of potential vibration impacts on this property. An additional vibration monitoring point shall be identified in the vicinity of this property. An additional vibration monitoring point shall be identified in the vicinity of this property. Revised proposals shall be submitted if necessary.

Response

Appendix E contains a technical note which provides the information required under Items 4(a) and 4(b).

5.0 Item 5 (Biodiversity): Revised Ecological Impact Assessment

It is considered that insufficient information is provided within Chapter 5 of the EIAR and application to enable a detailed assessment of potential ecological impacts of the development (in particular woodland habitat and bats). You are required to submit a revised Ecological Impact Assessment (EclA) for inclusion in the EIAR (Chapter 5) which addresses the following:



5.1 Item 5 (a): Landscaping Plan

Insufficient information is provided in relation to the woodland habitat proposed for removal. You are required to submit a tree survey (to be carried out in accordance with best practice) and tree schedule (and accompanying mapping) indicating the number and type of trees to be removed to accommodate the development and those proposed to be retained. You shall provide an impact assessment of the removal of the woodland habitat. A description of the methodology proposed for tree removal shall be provided.

You are furthermore required to provide a landscaping plan for the development.

Response

Appendix F contains a Tree Survey with accompanying schedule and mapping as requested by Item 5(a).

Chapter 5 of the original EIAR represented the EcIA for the proposed quarry extension development. **Appendix G** provides an updated Chapter 5 Ecological Impact Assessment (EcIA) which incorporates the findings of the Tree Survey and an assessment of the impact of the woodland loss. For ease of reference, the additional updated text added to the original Chapter 5 as a result of the additional surveys is highlighted yellow in **Appendix G** to distinguish it from the original EIAR chapter submitted.

Appendix H contains the Restoration Plan that was submitted as Figure 2-4 in the February 2023 EIAR. Following the tree survey carried out in May 2026, and the update of the EcIA / Chapter 5 of the EIAR, it is the recommendation of SLR's Principal Landscape Architect that the original Restoration Plan (2023 EIAR Figure 2-4) remains an appropriate Landscape Plan. Please also refer to Item 5(d) below.

5.2 Item 5 (b): Qualifications of Surveyors for Bat surveying

It is noted that the proposed woodland to be removed may be used by bats (for example foraging/roosting). A detailed impact assessment on bats in accordance with best practice guidance (including additional surveys if deemed required) by a suitably qualified bat expert is required to be included in the EcIA. Article 5(3)(a) of the amended Directive 2014/52/EU requires that *"the developer shall ensure that the environmental impact assessment report is prepared by competent experts"*. Marnell et al. (2022) states that bat survey reports should *"present the qualifications and experience of the surveyors and authors"*.

You are required to provide the qualifications and experience of the surveyors and authors. In the event that a derogation for bats is required, it is noted that the Commission is precluded from deciding on the proposed development until a Derogation for bat has been issued and confirming documentation copied to the Commission.

Response

The EIAR dated February 2023 which was submitted with the original planning application concluded that, based on a habitat survey in 2022, the trees within the application site had negligible suitability to support roosting bats.

A Bat Report is provided as **Appendix I**, which provides details of two bat surveys, one undertaken on 29 April 2026 and the second on 2 June 2026. Each survey comprised a walked transect survey and a static detector survey where two automated, full spectrum static bat detectors were deployed on the Site for a minimum period of seven days.



The full results of the bat surveys are found in the bat report in **Appendix I**. All of the transect and static detector surveys found low levels of bat activity. The dominant bat species recorded were common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*, which were recorded in low numbers in both the late-April and June surveys. There were very occasional detections of Leisler's bat *Nyctalus leisleri*, Daubenton's bat *Myotis daubentonii* and whiskered bat *Myotis mystacinus* recorded in the late-April and June static surveys but none were recorded during either of the walked transect surveys.

Based on the findings from the two bat surveys it can be assessed that bat activity, commuting and foraging, in the area is low.

The two bat surveys in April and June 2026 (detailed in **Appendix I** of this document) and the tree survey on 22 April 2026 (detailed in **Appendix F** of this document) both also assessed the site as having no potential roosting sites for bats. On this basis, there is no requirement for a bat derogation licence.

5.3 Item 5 (c): Alternative Sand Martin nesting site

You are required to submit specific details of alternative sand martin nesting site identified within the Figure 5.3 of the EIAR and confirm the provision and retention of same.

Response

Please refer to **Appendix G**, which provides details of possible sand martin nesting sites across the quarry complex.

Figure 1 below shows the location of the active sand martin nesting location in the large stockpile in the south-east corner of the application site. This stockpile is located at 53.943694, -7.199377.



Figure 1 Active Sand Martin Nesting Location 2026



As requested by way of Item 5(c) of the Request for Further Information made by An Coimisiún Pleanála dated 16 February 2026, the Applicant wishes to confirm that they are willing to commit to the protection of this habitat for the duration of the proposed development if required.

The Applicant has considered the possibility of providing an alternative or additional sand martin nesting wall along the shallow western banks of the previous quarry void. However, the experience of the SLR ecology team is that sand martins are expert burrowers who favour constructing their own nests in the kind of habitat offered in quarry stockpiles.

Should any stockpiles with signs of sand martin nesting be observed within the proposed application site, the Applicant undertakes not to remove these during the bird breeding season, 1st March to 31st August. If removed outside this period, an alternative sand pile will be created in an undisturbed area of the application site in time for the summer return of sand martin colonies. The Applicant has further committed to placing of sand piles along the western boundary of the currently inactive (flooded) quarry site, that can remain untouched and outside of the operational extension area.

5.4 Item 5 (d): Mitigation Measures

The revised EclA shall clearly identify the proposed mitigation and any compensation measures and explain how these will adequately address all likely significant adverse effects.

Response

Please refer to **Appendix G**, which provides details of mitigation and compensatory measures in relation to biodiversity. **Appendix H** contains details of proposed planting to compensate for the loss of tree/shrub habitat as a result of the proposed quarry extension. As previously illustrated in a report to Cavan County Council (dated 19 September 2023)⁴, the quarry void from previous quarry workings has achieved a high degree of natural rehabilitation, with landscape and ecological benefits. The natural colonisation of shrub species on benched slope has softened the old quarry faces encircling the naturally formed lake over the quarry void. Valuable habitats have been created for species such as breeding and cliff nesting birds like peregrine falcons, ravens, kestrels and rooks as well as smaller, more common breeding birds in the scrub habitat. The wetland feature created by the natural filling of the quarry void creates a new habitat for wetland birds such as mallards. It is increasingly recognised that previous mineral extraction sites often provide considerably more ecological benefits than other managed land uses.

6.0 Item 6: Environmental Management Plan

You are required to submit an Environmental Management Plan in respect of the proposal.

Response

Appendix J contains the Applicant's Environmental Management Plan for the Mullymagowan Quarry.

⁴ In response to a Request for Further Information from CCC on P. Ref. 23/169



7.0 Item 7: Revised Drawings

You are required to submit revised drawings/application documentation, including EIAR/AA Screening/NIS which reflect any changes resulting from a response to the items of further information together with any additional information deemed by you to be of relevance.

Response

The information submitted in response to the Further Information request from An Coimisiún Pleanála is supplementary, particularly in relation to woodland and bat surveys. The habitat plan for the proposed quarry extension was originally undertaken in October 2022, which is a sub-optimal survey month, therefore a conservative assessment of the potential ecological value of the site was undertaken.

The updated ecological and tree surveys have been undertaken in optimal survey periods and have not identified any additional adverse effects over those predicted in the original EIAR.

The remainder of the items have addressed clarification requirements and similarly do not change the parameters of the proposed quarry extension or its original assessment. Therefore, it has not been considered necessary or appropriate to submit revised drawings/application documentation, including EIAR/AA Screening/NIS.



Appendices





Appendix A **Discharge Licence Monitoring Results**

**Further Information Response (ABP-318793-24 P. Ref.
23/169)**

Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan

P & S Civil Works Ltd.

SLR Project No.: 501.064821.00001

11 June 2026



P & S Civil Works Ltd.

- Plant Hire •
- Quarry Owners •
- Civil Engineering Contractors •

**DRUMUCK,
STRADONE, CO. CAVAN**
Telephone: 049-433 0115
Fax: 049-433 0462

Cavan Co. Council
Environmental Section,
17 Farnham Street,
Cavan.

CAVAN COUNTY COUNCIL
Central Administration Department
12 MAR 2013

08-03-13

**Re: Licence to Discharge Trade Waters – Licence Number SS/W005/11
for P & S Civil Works Ltd.**

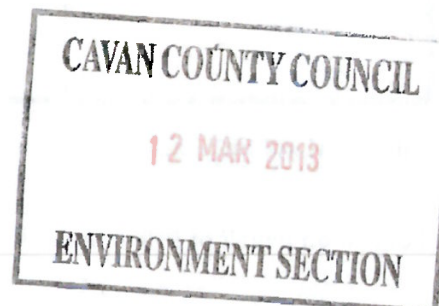
A Chara,

As per the conditions of the above Discharge Licence, enclosed please find copies of water Sampling Results taken during 2012 from the outfall discharge point.

If you have any queries or require clarification on any of the information submitted please contact the undersigned.

Mise, le meas,


Declan McCarthy
Director



TEST REPORT

Analysing
Testing
Consulting
Calibrating

Client: P&S Quarry
Drumuck
Stradone
Co.Cavan

BHP Ref. No.: 102235
Order No.:
Date Received: 30/01/12
Date Completed: 15/02/12
Test Specification: Nil
Item :See below



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NewRoad
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Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpccm2@bhp.ie

FTAO: Peter Smith

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
pH		-	7.04	APHA-4500-H ⁺ -B
BOD		mg/l	2	APHA - 5210 - B
COD		mg/l	13	APHA - 5220 - D
Total Suspended Solids		mg/l	16	APHA - 2540 -D
Nitrate (as NO ₃)		mg/l	12.4	APHA - 4110 - B
Mineral Oils		ug/l	1	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Pat O'Sullivan
Issue Date : 15/02/2012

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory

TEST REPORT

Client: **P&S Quarry
Drumuck
Stradone
Co.Cavan**

FTAO: Peter Smith

BHP Ref. No.: 102235

Order No.:

Date Received: 30/01/12

Date Completed: 15/02/12

Test Specification: Nil

Item :See below

Analysing
Testing
Consulting
Calibrating



BHP

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Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
Diesel Range Organics		ug/l	<10	GC-FID
Petrol Range Organics		ug/l	<10	GC-FID
Benzene		ug/l	<1	GC-FID
Toluene		ug/l	<5	GC-FID
Ethylbenzene		ug/l	<5	GC-FID
Para and Meta Xylene		ug/l	<2	GC-FID
Ortho Xylene		ug/l	<2	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Pat O'Sullivan

Issue Date : 15/02/2012

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT

Client: **P&S Quarry
Drumuck
Stradone
Co.Cavan**

FTAO: Peter Smith

BHP Ref. No.: 103669

Order No.:

Date Received: 26/04/12

Date Completed: 03/05/12

Test Specification: Nil

Item :See below

Analysing
Testing
Consulting
Calibrating



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Fax + 353 61 455447
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Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
pH		-	7.58	APHA-4500-H ⁺ -B
BOD		mg/l	1	APHA - 5210 - B
COD		mg/l	18	APHA - 5220 - D
Total Suspended Solids		mg/l	18	APHA - 2540 -D
Nitrate (as NO ₃)		mg/l	1.2	APHA - 4110 - B
Mineral Oils		ug/l	1	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Pat O'Sullivan

Issue Date : 04/05/2012

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT

Client: P&S Quarry
Drumuck
Stradone
Co.Cavan

FTAO: Peter Smith

BHP Ref. No.: 103669

Order No.:

Date Received: 26/04/12

Date Completed: 03/05/12

Test Specification: Nil

Item : See below

Analysing
Testing
Consulting
Calibrating



BHP
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E Mail bhpce2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
Diesel Range Organics		ug/l	<10	GC-FID
Petrol Range Organics		ug/l	<10	GC-FID
Benzene		ug/l	<1	GC-FID
Toluene		ug/l	<5	GC-FID
Ethylbenzene		ug/l	<5	GC-FID
Para and Meta Xylene		ug/l	<2	GC-FID
Ortho Xylene		ug/l	<2	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Pat O'Sullivan
Issue Date : 04/05/2012

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT

Client: **P&S Quarry
Drumuck
Stradone
Co.Cavan**

FTAO: Peter Smith

BHP Ref. No.: 105657

Order No.:

Date Received: 28/08/12

Date Completed: 03/09/12

Test Specification: Nil

Item :See below

Analysing
Testing
Consulting
Calibrating



BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpem2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
pH		--	7.26	APHA-4500-H ⁺ -B
BOD		mg/l	1	APHA - 5210 - B
COD		mg/l	60	APHA - 5220 - D
Total Suspended Solids		mg/l	86	APHA - 2540 -D
Nitrate (as NO ₃)		mg/l	1.9	APHA - 4110 - B
Mineral Oils		ug/l	<1	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Joan McCarthy
Issue Date : 05/09/2012

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT

Client: **P&S Quarry
Drumuck
Stradone
Co.Cavan**

FTAO: Peter Smith

BHP Ref. No.: 105657
Order No.:
Date Received: 28/08/12
Date Completed: 03/09/12
Test Specification: Nil
Item :See below

Analysing
Testing
Consulting
Calibrating



BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpce2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
Diesel Range Organics		ug/l	<10	GC-FID
Petrol Range Organics		ug/l	<10	GC-FID
Benzene		ug/l	<1	GC-FID
Toluene		ug/l	<5	GC-FID
Ethylbenzene		ug/l	<5	GC-FID
Para and Meta Xylene		ug/l	<2	GC-FID
Ortho Xylene		ug/l	<2	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Joan McCarthy
Issue Date : 05/09/2012

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT

Client: **P&S Quarry
Drumuck
Stradone
Co.Cavan**

FTAO: Peter Smith

BHP Ref. No.: 106677
Order No.:
Date Received: 30/10/12
Date Completed: 13/11/12
Test Specification: Nil
Item :See below

Analysing
Testing
Consulting
Calibrating



BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpem2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
pH		-	7.16	APHA-4500-H ⁺ -B
BOD		mg/l	2	APHA - 5210 - B
COD		mg/l	26	APHA - 5220 - D
Total Suspended Solids		mg/l	20	APHA - 2540 -D
Nitrate (as NO ₃)		mg/l	0.6	APHA - 4110 - B
Mineral Oils		ug/l	<1	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Joan McCarthy
Issue Date : 17/11/2012

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory

TEST REPORT

Analysing
Testing
Consulting
Calibrating



**Client: P&S Quarry
Drumuck
Stradone
Co.Cavan**

BHP Ref. No.: 106677

Order No.:

Date Received: 30/10/12

Date Completed: 13/11/12

Test Specification: Nil

Item :See below

FTAO: Peter Smith

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpccm2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
Diesel Range Organics		ug/l	<10	GC-FID
Petrol Range Organics		ug/l	<10	GC-FID
Benzene		ug/l	<1	GC-FID
Toluene		ug/l	<5	GC-FID
Ethylbenzene		ug/l	<5	GC-FID
Para and Meta Xylene		ug/l	<2	GC-FID
Ortho Xylene		ug/l	<2	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Joan McCarthy
Issue Date : 17/11/2012

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.



P & S Civil Works Ltd.

- Plant Hire •
- Quarry Owners •
- Civil Engineering Contractors •

DR UMUCK,
STRADONE, CO. CAVAN
Telephone 0 49-4330115
Fax: 049-4 330 462

Cavan Co. Council
Environmental Section,
17 Farnham Street,
Cavan.

02-04-14

**Re: Licence to Discharge Trade Waters – Licence Number SS/W005/11
for P & S Civil Works Ltd.**

A Chara,

As per the conditions of the above Discharge Licence, enclosed please find copies of water Sampling Results taken during 2013 from the outfall discharge point, Also copies of the weekly outfall inspection log.

If you have any queries or require clarification on any of the information submitted please contact the undersigned.

Mise, le meas,

Declan McCarthy

CAVAN COUNTY COUNCIL

Central Administration Department

7 APR 2014

CAVAN COUNTY COUNCIL

08 APR 2014

ENVIRONMENT SECTION

TEST REPORT NO.: 111535

**Client: P&S Quarry
Drumuck
Stradone
Co.Cavan**

**BHP Ref. No.: 13/11/834
Order No.:
Date Received: 28/11/13
Date Completed: 05/12/13
Test Specification: Nil
Item :See below**

Analysing
Testing
Consulting
Calibrating



BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpccm2@bhp.ie

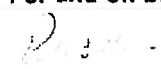
FTAO: Declan Smith

Test	Client Reference	Units	Results	Standard Reference
pH	Water Discharge at Stradone Council Approved Discharge Point Q4- 2013	-	7.80	APHA-4500-H ⁺ -B
BOD		mg/l	2	APHA - 5210 - B
COD		mg/l	1	APHA - 5220 - D
Total Suspended Solids		mg/l	10	APHA - 2540 -D
Nitrate (as NO ₃)		mg/l	2.117	APHA - 4110 - B
Mineral Oils		mg/l	<0.1	GC-FID
Ammonia (as N)		mg/l	0.06	APHA -4500 -NH ₃ -D

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 22nd Edition.

For and on behalf of BHP laboratories :


Paul O'Sullivan
Issue Date : 10/12/13

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT NO.: 111535

**Client: R & S Quarry
Drumuck
Stradone
Co. Cavan**

**BHP Ref. No.: 13/1 1/834
Order No.:
Date Received: 28/11/13
Date Completed: 05/12/13
Test Specification: Nil
Item : See below**

FTAO: Declan Smith

Analysing
Testing
Consulting
Calibrating



BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpccm2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone Council Approved Discharge Point Q4- 2013			
Diesel Range Organics		mg/l	<0.01	GC-FID
Petroleum Range Organics		mg/l	<0.005	GC-FID
Benzene		mg/l	<0.01	GC-FID
Toluene		mg/l	<0.01	GC-FID
Ethylbenzene		mg/l	<0.01	GC-FID
Para and Meta Xylene		mg/l	<0.01	GC-FID
Ortho Xylene		mg/l	<0.01	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 22nd Edition.

For and on behalf of BHP laboratories :

**Paul O'Sullivan
Issue Date : 10/12/13**

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT NO.: 110511Analysing
Testing
Consulting
CalibratingClient: **P&S Quarry
Drumuck
Stradone
Co.Cavan**BHP Ref. No.: 13/08/712
Order No.:
Date Received: 30/08/13
Date Completed: 05/09/13
Test Specification: Nil
Item :See belowBHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcem2@bhp.ie

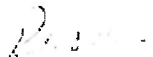
FTAO: Peter Smith

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone Council Approved Discharge Point Q3- 2013			
pH		-	8.00	APHA-4500-H ⁺ -B
BOD		mg/l	2	APHA - 5210 - B
COD		mg/l	<1	APHA - 5220 - D
Total Suspended Solids		mg/l	8.4	APHA - 2540 -D
Nitrate (as NO ₃)		mg/l	6.067	APHA - 4110 - B
Mineral Oils		mg/l	<0.1	GC-FID
Ammonia (as N)		mg/l	0.06	APHA -4500 -NH ₃ -D

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 22nd Edition.

For and on behalf of BHP laboratories :


Paul O'Sullivan
Issue Date : 18/09/13

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT NO.: 110511

Client: **P&S Quarry
Drumuck
Stradone
Co. Cavan**

FTAO: Peter Smith

BHP Ref. No.: 13/08/712
Order No.:
Date Received: 30/08/13
Date Completed: 05/09/13
Test Specification: Nil
Item : See below

Analysing
Testing
Consulting
Calibrating



BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpccm2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone Council Approved Discharge Point Q3- 2013			
Desel Range Organics		mg/l	<0.01	GC-FID
Petrol Range Organics		mg/l	<0.005	GC-FID
Benzene		mg/l	<0.01	GC-FID
Toluene		mg/l	<0.01	GC-FID
Ethylbenzene		mg/l	<0.01	GC-FID
Paraand Meta Xylene		mg/l	<0.01	GC-FID
Ortho Xylene		mg/l	<0.01	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 22nd Edition.

For and on behalf of BHP laboratories :

Paul O'Sullivan
Paul O'Sullivan
Issue Date : 18/09/13

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT NO.: 109435 Iss 2Analysing
Testing
Consulting
CalibratingClient: **P&S Quarry
Drumuck
Stradone
Co.Cavan**

BHP Ref. No.: 13/05/731

Order No.:

Date Received: 30/05/13

Date Completed: 12/06/13

Test Specification: Nil

Item :See below

BHP

New Road

Thomondgate

Limerick

Ireland

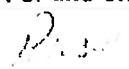
Tel +353 61 455399

Fax + 353 61 455447

E Mail bhpce12@bhp.ie

FTAO: Teresa Mylott

Test	Client Reference	Units	Results	Standard Reference
pH	Water Discharge at Stradone Council Approved Discharge Point Q2- 2013	-	7.04	APHA-4500-H ⁺ -B
BOD		mg/l	2	APHA - 5210 - B
COD		mg/l	8	APHA - 5220 - D
Total Suspended Solids		mg/l	16.8	APHA - 2540 - D
Nitrate (as NO ₃)		mg/l	<0.1	APHA - 4110 - B
Mineral Oils		mg/l	<0.1	GC-FID
Ammonia (as N)		mg/l	0.01	APHA -4500 -NH ₃ -D

Additional information :All methods are from Standard Methods for the Examination of Water
and Wastewater 22nd Edition**For and on behalf of BHP laboratories :**

Paul O'Sullivan
Issue Date : 13/08/13

Test results relate only to the above items. This test report shall not be duplicated in full without the permission of the test laboratory.
--

TEST REPORT NO.: 109435 ss 2

Analysing
Testing
Consulting
Calibrating**BHP**Client: P&S Quarry
Drumuck
Stradone
Co.CavanBHP Ref. No.: 13/05/731
Order No.:
Date Received: 30/05/13
Date Completed: 12/06/13
Test Specification: Nil
Item :See belowBHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpccm2@bhp.ie

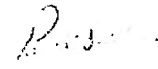
FTAO: Teresa Mylott

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone Council Approved Discharge Point Q2- 2013			
Diesel Range Organics		mg/l	<0.01	GC-FID
Petrol Range Organics		mg/l	<0.005	GC-FID
Benzene		mg/l	<0.01	GC-FID
Toluene		mg/l	<0.01	GC-FID
Ethylbenzene		mg/l	<0.01	GC-FID
Para and Meta Xylene		mg/l	<0.01	GC-FID
Ortho Xylene		mg/l	<0.01	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water
and Wastewater 22nd Edition

For and on behalf of BHP laboratories :


 Paul O'Sullivan
 Issue Date : 13/08/13

Test results relate only to the items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT NO.:107751Analysing
Testing
Consulting
CalibratingClient: **P&S Quarry
Drumuck
Stradone
Co.Cavan**BHP Ref. No.: 13/01/768
Order No.:
Date Received: 29/01/13
Date Completed: 21/02/13
Test Specification: Nil
Item :See belowBHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpem2@bhp.ie

FTAO: Peter Smith

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone Q1- 2013			
pH		-	7.1	APHA-4500-H ⁺ -B
BOD		mg l	2	APHA - 5210 - B
COD		mg/l	4	APHA - 5220 - D
Total Suspended Solids		mg l	11	APHA - 2540 -D
Nitrate (as NO ₃)		mg/l	2.4	APHA - 4110 - B
Mineral Oils		mg/l	<0.1	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

Joan McCarthy
Joan McCarthy (Signature)
 Joan McCarthy

Issue Date : 04/03/13

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory

TEST REPORT NO.: 1 077 51Analysing
Testing
Consulting
CalibratingClient: **P&S Quarry
Drumuck
Stradone
Co. Cavan**

BHP Ref. No.: 13/01/768

Order No.:

Date Received: 29/01/13

Date Completed: 21/02/13

Test Specification: Nil

Item : See below

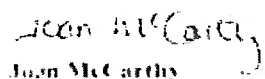
FTAO: Peter Smith

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpccm2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone Q1- 2013			
Desel Range Organics		mg/l	<0.01	GC-FID
Petrol Range Organics		mg/l	<0.005	GC-FID
Benzene		mg/l	<0.01	GC-FID
Toluene		mg/l	<0.01	GC-FID
Ethylbenzene		mg/l	<0.01	GC-FID
Para and Meta Xylene		mg/l	<0.01	GC-FID
Ortho Xylene		mg/l	<0.01	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

 Joan McCarthy

Issue Date : 04/03/13

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory



Name
Discharge Weekly Visual Inspection

SF 64

Issue No. 01

Issue date:
12/03/12

Page 1 of 1

As per the Discharge Licence Condition 6 & 7 weekly visual inspections of the water management system and receiving water course must be carried out and recorded on this form. Inspections are to be carried out by the Lab Technician or Quarry Manager & any negative outcomes reported immediately to the Quarry Manager. This form is to be filed in the in the Quarry Office.

Location of Inspection	Date of Inspection	Outcome of Inspection & General Comments	Inspection Carried out by
Discharge Point	Tuesday 24/Sept/13	Good Day No Coughing Water looks good	Paul Smith
"	Thurs 3/10/2013	Good Day Water looks Fine	Paul Smith
"	Friday 11/10/2013	Weather good Water looks good	Paul Smith
"	Fri 18/10/2013	RAINING Water looks good	Paul Smith
"	Thursday 24/10/2013	Good Day Water looks good	Paul Smith
"	Fri 1/11/2013	Good Day Water looks Fine	Paul Smith
"	Fri 8/11/2013	Good Day Water looks good	Paul Smith
"	Thurs 24/Nov/13	Water looks Fine	Paul Smith
"	Monday 2/Dec	Good Day Water looks good	Paul Smith
"	Tues 10 Dec	RAINING Water looks Fine	Paul Smith
"	Thurs 19 Dec 2013	Good Day Water looks good	Paul Smith



Name
Discharge Weekly Visual Inspection

SF 64

Issue No. 01

Issue date:
12/03/12

Page 1 of 1

As per the Discharge Licence Condition 6 & 7 weekly visual inspections of the water management system and receiving water course must be carried out and recorded on this form. Inspections are to be carried out by the Lab Technician or Quarry Manager & any negative outcomes reported immediately to the Quarry Manager. This form is to be filed in the in the Quarry Office.

Location of Inspection	Date of Inspection	Outcome of Inspection & General Comments	Inspection Carried out by
Discharge Point	18/6/2013	Water looks Clear (good dry)	Paul Smith
"	26/6/2013	water looks clear	Paul Smith
"	4/7/2013	water looks Fine	Paul Smith
"	12/7/2013	Water looks good	Paul Smith
"	19/7/2013	Water looks good	Paul Smith
"	26/7/2013	Water looks Fine	Paul Smith
"	9/8/13	Showers Water looks good	Paul Smith
"	26/8/13	Good Dry Water looks good	Paul Smith
"	2/Sept 13	Good Dry Water looks good	Paul Smith
"	9/Sept 13	Checked Flow the fine w looks good	Paul Smith
"	17/Sept 13	Cool dry Showers looks Clear at discharge point	Paul Smith



Name
Discharge Weekly Visual Inspection

SF 64
Issue date:
12/03/12

Issue No. 01
Page 1 of 1

As per the Discharge Licence Condition 6 & 7 weekly visual inspections of the water management system and receiving water course must be carried out and recorded on this form. Inspections are to be carried out by the Lab Technician or Quarry Manager & any negative outcomes reported immediately to the Quarry Manager. This form is to be filed in the in the Quarry Office.

Location of Inspection	Date of Inspection	Outcome of Inspection & General Comments	Inspection Carried out by
Discharge Point	25/3/2013	Snow on ground water looks good	Paul Smith
"	4/4/2013	Good Day water looks good	Paul Smith
"	11/APRIL/13	Wet Morning Water looks good	Paul Smith
"	19/APRIL/13	V good Day water looks good	Paul Smith
"	26/APRIL/13	Good Day Bright water looks good	Paul Smith
"	3 May/13	Showers water looks good	Paul Smith
"	10/may 13	Showers Water looks Clear	Paul Smith
"	17/may 13	Good Day water looks Clear	Paul Smith
"	24/may 13	Checked stream water looks good	Paul Smith
"	4 June	Checked stream Very good Day etc	Paul Smith
"	11/6/2013	Wet Checked stream Looked good	Paul Smith

	Name	SF 64	Issue No. 01
	Discharge Weekly Visual Inspection	Issue date: 12/03/12	Page 1 of 1

As per the Discharge Licence Condition 6 & 7 weekly visual inspections of the water management system and receiving water course must be carried out and recorded on this form. Inspections are to be carried out by the Lab Technician or Quarry Manager & any negative outcomes reported immediately to the Quarry Manager. This form is to be filed in the in the Quarry Office.

Location of Inspection	Date of Inspection	Outcome of Inspection & General Comments	Inspection Carried out by
Discharge Point	11/Jan/2013	No Cracking Frosty water looks good in stream	Paul Smith
"	18/Jan/13	Snowing water in stream looks good	Paul Smith
"	25/Jan/13	A lot of rain last night + through out the day good flow looks good	Paul Smith
"	1/Feb/2013	Raining no cracking water looks fine	Paul Smith
"	8 Feb 2013	Mild Morning Temp 3°C good flow water looks good	Paul Smith
"	15/Feb 2013	Good Day cold cracking water in stream looks good	Paul Smith
"	22/Feb/2013	Cracking Left Pump at Face Checked at news looks good	Paul Smith
"	1/MARCH/2013	V good Day stream looks good	Paul Smith
"	8/MARCH 2013	Rain All Day cracking stream looks good	Paul Smith
"	15/MARCH/2013	Bleating to Day Checked by rain everything looks good.	Paul Smith
"	22/MARCH/13	Clean up path Down to Discharge Point Put in some Cat a ment POWERS checked stream looks good	Paul Smith



Name
Discharge Weekly Visual Inspection

SF 64
Issue date:
12/03/12

Issue No. 01
Page 1 of 1

As per the Discharge Licence Condition 6 & 7 weekly visual inspections of the water management system and receiving water course must be carried out and recorded on this form. Inspections are to be carried out by the Lab Technician or Quarry Manager & any negative outcomes reported immediately to the Quarry Manager. This form is to be filed in the in the Quarry Office.

Location of Inspection	Date of Inspection	Outcome of Inspection & General Comments	Inspection Carried out by
Discharge Point	19/oct 2012	Heavy Rain early in week Good flow water in stream looks fine	Paul Smith
"	26/oct/2012	Cool + Dry water in stream looks fine good flow	Paul Smith
"	2/Nov/2012	Bright morning Temp 20C Stream looks good No Cresting	Paul Smith
"	9/nov/2012	No Cresting good Day water looks good	Paul Smith
"	16/Nov/2012	No Cresting A lot of water at the fence due to rainfall cleared stream looks good	Paul Smith
"	23/Nov/12	Shower Cool water looks good	Paul Smith
"	30/nov/12	Cool day good flow in stream water looks good	Paul Smith
"	7/Dec/12	Frost + Cool Bright water looks good No Cresting	Paul Smith
"	14/Dec/2012	Wet-Morning lot of Rain Over night water looks ok	Paul Smith
"	20/Dec/2012	Mild good amount of water at the fence at the fence Water in stream good	Paul Smith
"	7/Jan/2013	Very wet Day Rain All night lot of water at the fence looked good in stream	Paul Smith

Sample Notes : and when that fails **978-097-100-107**

Queries in relation to this report should be addressed to the undersigned

Laboratory Analysis Report

Sample Notes :

[illegible]

Queues in relation to this report should be addressed to the undersigned

TEST REPORT

Client: P&S Quarry
Drumuck
Stradone
Co.Cavan

FTAO: Peter Smith

BHP Ref. No.: 102235
Order No.:
Date Received: 30/01/12
Date Completed: 15/02/12
Test Specification: Nil
Item :See below

Analysing
Testing
Consulting
Calibrating



BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpccm2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
pH		-	7.04	APHA-4500-H ⁺ -B
BOD		mg/l	3	APHA - 5210 - B
COD		mg/l	13	APHA - 5220 - D
Total Suspended Solids		mg/l	16	APHA - 2540 -D
Nitrate (as NO ₃)		mg/l	12.4	APHA - 4110 - B
Mineral Oils		ug/l	<1	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :


Pat O'Sullivan
Issue Date : 15/02/2012

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT

Client: P&S Quarry
Drumuck
Stradone
Co.Cavan

FTAO: Peter Smith

BHP Ref. No.: 102235

Order No.:

Date Received: 30/01/12

Date Completed: 15/02/12

Test Specification: Nil

Item :See below

Analysing
Testing
Consulting
Calibrating



BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455389
Fax + 353 61 455447
E Mail bhpccm2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
DieselRange Organics		ug/l	<10	GC-FID
PetroRange Organics		ug/l	<10	GC-FID
Benzene		ug/l	<1	GC-FID
Toluene		ug/l	<5	GC-FID
Ethylbenzene		ug/l	<5	GC-FID
Para and Meta Xylene		ug/l	<2	GC-FID
OrthoXylene		ug/l	<2	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :


Pat O'Sullivan
Issue Date : 15/02/2012

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

Paul

TEST REPORT

Client: **P&S Quarry
Drumuck
Stradone
Co.Cavan**

FTAO: Peter Smith

BHP Ref. No.: 99959
Order No.:
Date Received: 29/08/11
Date Completed: 07/09/11
Test Specification: Nil
Item :See below

Analysing
Testing
Consulting
Calibrating



BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpccm2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
pH		-	6.76	APHA-4500-H ⁺ -B
BOD		mg/l	3	APHA - 5210 - B
COD		mg/l	51	APHA - 5220 - D
Total Suspended Solids		mg/l	14	APHA - 2540 - D
Nitrate (as NO ₃)		mg/l	22.3	APHA - 4110 - B
Mineral Oils		ug/l	<1	GC-FID

Additional Information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :

P. O'Sullivan
Pat O'Sullivan
Issue Date : 07/09/2011

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT

Analysing
Testing
Consulting
Calibrating



Client: **P&S Quarry
Drumuck
Stradone
Co.Cavan**

BHP Ref. No.: 99959
Order No.:
Date Received: 29/08/11
Date Completed: 07/09/11
Test Specification: Nil
Item :See below

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpceem2@bhp.ie

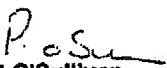
FTAO: Peter Smith

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
Diesel Range Organics		ug/l	<10	GC-FID
Petrol Range Organics		ug/l	<10	GC-FID
Benzene		ug/l	<1	GC-FID
Toluene		ug/l	<5	GC-FID
Ethylbenzene		ug/l	<5	GC-FID
Para and Meta Xylene		ug/l	<2	GC-FID
Ortho Xylene		ug/l	<2	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :


Pat O'Sullivan
Issue Date : 07/09/2011

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT

Client: **P&S Quarry
Drumuck
Stradone
Co.Cavan**

FTAO: Peter Smith

BHP Ref. No.: 96659
Order No.:
Date Received: 26/01/11
Date Completed: 31/01/11
Test Specification: Nil
Item :See below

Analysing
Testing
Consulting
Calibrating



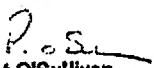
BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpce2@bhp.ie

Test	Client Reference	Units	Results	Standard Reference
	Water Discharge at Stradone			
pH		-	7.70	APHA-4500-H ⁺ -B
BOD		mg/l	1	APHA - 5210 - B
COD		mg/l	5	APHA - 5220 - D
Total Suspended Solids		mg/l	19	APHA - 2540 - D
Nitrate (as NO ₃)		mg/l	34.6	APHA - 4110 - B
Mineral Oils		ug/l	<1	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :


Pat O'Sullivan
Issue Date : 02/02/2011

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.

TEST REPORT

Analysing
Testing
Consulting
Calibrating



Client: **P&S Quarry
Drumuck
Stradone
Co.Cavan**

BHP Ref. No.: 96659
Order No.:
Date Received: 26/01/11
Date Completed: 31/01/11
Test Specification: Nil
Item :See below

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpcom2@bhp.ie

FTAO: Peter Smith

Test	Client Reference	Units	Results	Standard Reference
	WaterDischarge at Stradone			
DieselRange Organics		ug/l	<10	GC-FID
PetrolRange Organics		ug/l	<10	GC-FID
Benzene		ug/l	<1	GC-FID
Toluene		ug/l	<5	GC-FID
Ethylbenzene		ug/l	<5	GC-FID
Paraand Meta Xylene		ug/l	<2	GC-FID
OrthoXylene		ug/l	<2	GC-FID

Additional information :

All methods are from Standard Methods for the Examination of Water and Wastewater 20th Edition.

For and on behalf of BHP laboratories :


Pat O'Sullivan
Issue Date : 02/02/2011

Test results relate only to this/these items. This test report shall not be duplicated in full without the permission of the test laboratory.



ALcontrol Laboratories

Unit 18A
Rosemount Business Park
Ballycoolin
Dublin 11
Tel : (0035) 3188 29893

Tobin
Block 10 - 4
Blanchardstown Corporate Park
Dublin

Attention: Siobhan Tinnelly

CERTIFICATE OF ANALYSIS

Date: 17 December 2010
Customer: D_TOBIN_DUB
Sample Delivery Group (SDG): 101214-30
Your Reference: 5963
Location: PTS Civils, Stradone
Report No: 108411

We received 5 samples on Tuesday December 14, 2010 and 5 of these samples were scheduled for analysis which was completed on Friday December 17, 2010. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

All chemical testing (unless subcontracted) is performed at ALcontrol Hawarden Laboratories.

Asbestos testing - we are not accredited for screening soil samples for asbestos fibres. We are only accredited to identify asbestos fibres in bulk material (ACM).

Approved By:

Sonia McWhan
Laboratory Manager



ALcontrol Laboratories is a trading division of ALcontrol UK Limited
Registered Office: Units 7 & 8 Hawarden Business Park, Manor Road, Hawarden, Deeside, CH5 3US. Registered in England and Wales No.

SDG: 101214-30
Job: D_TOBIN_DUB-41
Client Reference: 5963

Location: PTS Civils, Stradone
Customer: Tobin
Attention: Siobhan Tinnelly

Order Number: 1887
Report Number: 108411
Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
2576397	Corfad Lough			13/12/2010
2576398	D/S Discharge			13/12/2010
2576400	Drainage Ditch B			13/12/2010
2576396	Pond			13/12/2010
2576399	Stream A			13/12/2010

Only received samples which have had analysis scheduled will be shown on the following pages.

SDG: 101214-30
 Job: D_TOBIN_DUB-41
 Client Reference: 5863

Location: PTS Civils, Stradone
 Customer: Tobin
 Attention: Siobhan Tinnelly

Order Number: 1987
 Report Number: 108411
 Superseded Report:

Test Schedule

LIQUID Results Legend ☒ Test ☐ No Determination Possible	Lab Sample No(s)				
	Customer Sample Reference				
	AGS Reference				
	Depth (m)				
	Container				
		2576389	Stream A	PLAS BOT ID	
		2576386	Pond	PLAS BOT ID	
		2576400	Drainage Ditch B	PLAS BOT ID	
		2576388	DS Drainage	PLAS BOT ID	
		2576387	Corted Lough	PLAS BOT ID	
Anions by Kone (w)	All	NDPs: 0 Tests: 5	X	X	X
Conductivity (at 20 deg C)	All	NDPs: 0 Tests: 5	X	X	X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 5	X	X	X
pH Value	All	NDPs: 0 Tests: 5	X	X	X
Total Suspended Solids	All	NDPs: 0 Tests: 5	X	X	X

SDG: 101214-30
Job: D_TOBIN_DUB-41
Client Reference: 5963

Location: PTS Civils, Stradone
Customer: Tobin
Attention: Siobhan Tinnelly

Order Number: 1987
Report Number: 108411
Superseded Report:

[illegible]

CERTIFICATE OF ANALYSIS

SDG:	101214-30	Location:	PTS Civils, Stradone	Order Number:	1987
Job:	D_TOBIN_DUB-41	Customer:	Tobin	Report Number:	108411
Client Reference:	5963	Attention:	Siobhan Tinnelly	Superseded Report:	

Table of Results - Appendix

REPORT KEY

NDP	No Determination Possible	#	ISO 17025 Accredited	Subcontracted Test	M	MCERTS Accredited
NFD	No Fibres Detected	PFD	Possible Fibres Detected	Result previously reported (Incremental reports only)	EC	Equivalent Carbon (Aromatics C8-C10)

Note: Method detection limits are not always achievable due to various circumstances beyond our control

Method No	Reference	Description	Wet/Dry Sample *	Surrogate Corrected
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 120 1981; BS EN 872	Determination of total suspended solids in waters		
TM120	Method 2510B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part 9: 1970	Determination of Electrical Conductivity using a Conductivity Meter		
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS		
TM184	EPA Methods 325.1 & 325.2,	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers		
TM256	The measurement of Electrical Conductivity and the Laboratory determination of pH Value of Natural, Treated and Wastewaters. HMSO, 1978. ISBN 011 751428 4.	Determination of pH in Water and Leachate using the GLPH pH Meter		

* Applies to Solid samples only DRY indicates samples have been dried at 35°C. NA = not applicable.

SDG: 101214-30
 Job: D_TOBIN_DUB-41
 Client Reference: 5963

Location: PTS Civils, Stradone
 Customer: Tobin
 Attention: Siobhan Tinnelly

Order Number: 1987
 Report Number: 108411
 Superseded Report:

Test Completion Dates

Lab Sample No(s)	2576397	2576398	2576400	2576396	2576399
Customer Sample Ref .	Corfed Lough	D/B Discharge	Drainage Ditch	Pond	Stream A
AGS Ref.					
Depth					
Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID
Anions by Kone (w)	16-Dec-2010	15-Dec-2010	15-Dec-2010	17-Dec-2010	15-Dec-2010
Conductivity (at 20 deg.C)	17-Dec-2010	17-Dec-2010	17-Dec-2010	17-Dec-2010	17-Dec-2010
Dissolved Metals by ICP-MS	18-Dec-2010	18-Dec-2010	18-Dec-2010	16-Dec-2010	16-Dec-2010
pH Value	18-Dec-2010	18-Dec-2010	16-Dec-2010	16-Dec-2010	16-Dec-2010
Total Suspended Solids	16-Dec-2010	16-Dec-2010	16-Dec-2010	16-Dec-2010	16-Dec-2010



ALcontrol Laboratories

Validated

CERTIFICATE OF ANALYSIS

SDG:	101214-30	Location:	PTS Civils, Stradone	Order Number:	1887
Job:	D_TOBIN_DUB-41	Customer:	Tobin	Report Number:	108411
Client Reference:	5963	Attention:	Siobhan Tinnelly	Superseded Report:	

SDG: 101214-30
Job: DIOBIN_DUB-41
Client Reference: 5 983

Location: PTS Civils, Stradone
Customer: Tobin
Attention: Siobhan Tinnelly

Order Number: 1987
Report Number: 108411
Superseded Report:

Appendix

1 Results are expressed on a dry weight basis (dried at 30°C) for all soil analyses except for the following: NRA Leach tests, flash point, ammonium as NH₄ by the BRE method, VOC TICS, SVOC TICS, TOF-MS, SCANSEARCH and TOF-MS TICS

2 Samples will be run in duplicate upon request, but an additional charge may be incurred

3 If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for both soil jars, tube and volatile jars. All waters and vials will be discarded 10 days after the analysis is completed (e-mailed). All material removed during an asbestos containing material screen and analysed for the presence of asbestos will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4 With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5 We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinations there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6 When requested, the individual sub sample scheduled will be screened in house for the presence of large asbestos containing material fragments/pieces. If no asbestos containing material is found this will be reported as 'no asbestos containing material detected'. If asbestos containing material is detected it will be removed and analysed by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If asbestos containing material is present no further analysis will be undertaken. At no point is the fibre content of the soil sample determined.

7. If no separate volatile sample is supplied by the client, the integrity of the data may be compromised if the laboratory is required to create a sub-sample from the bulk sample - similarly, if a headspace or sediment is present in the volatile sample. This will be flagged up as an invalid VOC on the test schedule or recorded on the log sheet.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP - No determination possible due to insufficient/unusable sample.

10 Metals in water are performed on a filtered sample, and therefore represent dissolved metals - total metals must be requested separately.

11 A table containing the date of analysis for each parameter is not routinely included with the report, but is available upon request.

12 Results relate only to the items tested

13 Surrogate recoveries - Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70-130%.

14. Product analyses - Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.

16 Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).

16 Total of 5 speckled phenols by HPLC includes Phenol, 2,3,5-Tdimethyl Phenol 2-Isopropylphenol, Cresols and Xylenols (as detailed in 14)

17 Steroids/obns are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. Our MCERTS accreditation for PAHs by GCMS applies to all product types apart from Kerosene, where naphthalene only is not accredited.

19. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences in both cases the sample would be diluted which would cause the method detection limit to be raised.

20 Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample

21 For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GC/FID/GCMS and all subcontracted analysis.

22. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction

23 We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample

24 Analysis and identification of specific compounds using GC/FID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C4-C10 range, the total area of the chromatogram is integrated and expressed as o/g/g or u/g/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	DIC OR VET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	DIC	DCM	SOXHERM	GRM/MERC
CHLOROWAX EXTRACT	DIC	CHLOROWAX	SOXHERM	GRM/MERC
THIN LAYER CHROMATOGRAPHY	DIC	DCM	SOXHERM	HTO/COIN
ELEMENTAL SULPHUR	DIC	DCM	SOXHERM	HPLC
PHENOL BY GAS	VET	DCM	SOXHERM	GC/MS
PESTICIDES	DIC	HEXANE/ACETONE	SOXHERM	GC/MS
PESTICIDES	DIC	HEXANE/ACETONE	SOXHERM	GC/MS
EPH (GRO)	DIC	HEXANE/ACETONE	END OVEREND	GC/FID
EPH (MOU)	DIC	HEXANE/ACETONE	END OVEREND	GC/FID
EPH (CLEANED UP)	DIC	HEXANE/ACETONE	END OVEREND	GC/FID
EPH (GRO) BY GC	DIC	HEXANE/ACETONE	END OVEREND	GC/FID
PCB TOT / PCB CON	DIC	HEXANE/ACETONE	END OVEREND	GC/MS
POLYAROMATIC HYDROCARBONS (MS)	VET	HEXANE/ACETONE	MICROWAVE THERM	GC/MS
CHLOROCARBON (G) FLUSH	VET	HEXANE/ACETONE	SHWIR	GC/MS
POLYAROMATIC HYDROCARBONS (HARD GC)	VET	HEXANE/ACETONE	SHWIR	GC/MS
SEM VOLATILE ORGANIC COMPOUNDS	VET	DIACETONE	SONICATE	GC/MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAHMS	HEXANE	STIRRED EXTRACTION (STIRBAR)	GC/MS
EPH	HEXANE	STIRRED EXTRACTION (STIRBAR)	GC/FID
EPH (GRO)	HEXANE	STIRRED EXTRACTION (STIRBAR)	GC/FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIRBAR)	GC/FID
PCB TOXIC EQUIVALENTS	HEXANE	STIRRED EXTRACTION (STIRBAR)	GC/MS
PCB TOTAL	HEXANE	STIRRED EXTRACTION (STIRBAR)	GC/MS
SUCC	DCM	LIQUID/LIQUID SHAKE	GC/MS
FREESULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PEST COROPP	DCM	LIQUID/LIQUID SHAKE	GC/MS
TRIAZINE/HERB	DCM	LIQUID/LIQUID SHAKE	GC/MS
PHENOL/MS	DCM	SOLID PHASE EXTRACTION	GC/MS
TRIHYDROINFRARED (IR)	TCE	LIQUID/LIQUID SHAKE	HPLC
MINERAL OIL by IR	TCE	LIQUID/LIQUID SHAKE	HPLC
GLYCOLS	NONE	DIRECT INJECTION	GC/MS

Identification of Asbestos in Bulk Materials

The results for asbestos identification for soil samples are obtained from possible Asbestos Containing Material, removed during the 'Screening of soils for Asbestos Containing Material', which have been submitted to determine the presence of asbestos fibres using ALcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in MDHS 100.

The identification of asbestos containing materials falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Actual as type	Common Name
Crystals	Vitreous Asbestos
Acute	Serpentine Asbestos
Crystals	Blue Asbestos
Fibres Acute	-
Fibres Amphibole	-
Fibres Tremolite	-



Appendix B **Noise and Dust Monitoring Results**

**Further Information Response (ABP-318793-24 P. Ref.
23/169)**

Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan

P&S Civil Works Ltd.

SLR Project No.: 501.064821.00001

11 June 2026

Dust Monitoring Results February 2012

Noise Monitoring Results February 2012

BHP/CEM/23/A

Analysing
Testing
Consulting
Calibrating

TECHNICAL REPORT



Client:
P & S Quarry
Drumuck
Stradone
Co.Cavan

BHP Ref No.: 102234
Order No.:
Date Received: 30th January 2012
Date Tested: 02nd February 2012
Test Specification: Nil

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpce2@bhp.ie

FAO Declan Smith

Item: *Dust deposition results for monitoring period, **January 2012** using Dust deposit gauges as per VDI 2119 Part 2, at the P & S quarry operation at Drumuck, Stradone, Co. Cavan.*

For and on behalf of BHP Ltd.


Pat O'Sullivan

Date Issued: 03rd February 2012

Supplement to report No. N/A

Test results relate only to this item. This test report shall not be duplicated except in full and with the permission of the test laboratory

1.0 Introduction

At the request of P & S Quarry, BHP conducted a monthly dust-monitoring programme at the quarry operation at Drumuck, Stradone, Co. Cavan.

All sampling and analysis was conducted in accordance with Germany Standard VDI 2119 using Bergerhoff dust deposition gauges. Details of sampling procedures are given in the bulk of the report.

The EPA Publication 'draft guidelines on the information to be contained in environmental impact statements' has been used as a reference for this report.

2.0 Sampling

The sampling was carried out in accordance with VDI 2119 Part 2 using Bergerhoff dust deposition gauges. The gauges were in place between the 21st of December 2011 and the 30th of January, 2012.

2.1 Sampling Locations

The gauges were all placed at ground level. The locations of the sampling sites are presented in appendix 1. Photographs of the dust gauges on site are presented in appendix 2.

d) Quality Control (Skewhart) Charts

Analysis in the CEM laboratory is monitored using control charts. Each analysis will have at least 3 charts monitoring;

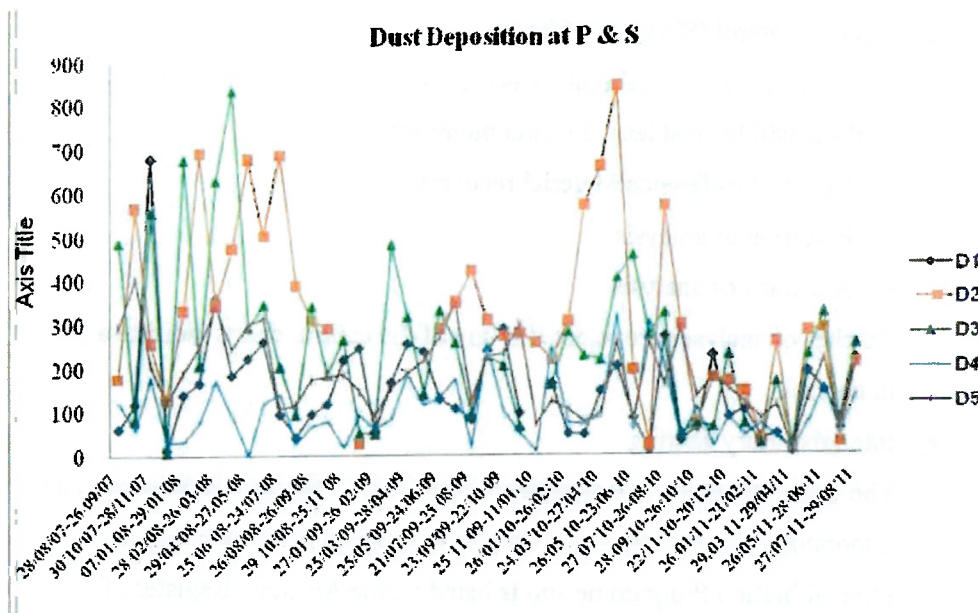
- Certified Reference Material recovery
- Precision of analysis
- Accuracy of analysis

Batches of analyses are rejected if any of the control charts indicate a loss in control.

e) Interlaboratory Testing

The CEM laboratory are members of the W.R.C Aquacheck Scheme. The Laboratory also participates in the Environmental Protection Agency's Intercalibration Programme and is listed on the Agency's Register of Quality Approved Testing Laboratories.

The Laboratory participates on a bi-annual basis in the British Gas Interlaboratory Proficiency Schemes for the analysis of contaminated soils and waters.



4.0 Conclusions

P & S Quarry has not provided a regulatory limit for dust deposition to BHP Laboratories for assessment against and thus all values are for information purposes only.

All Dust monitoring locations are below the usual EPA guideline of $350 \text{ mg/m}^2/\text{day}$ deposition for this monitoring period.

5.0 References

- 1) Draft Guidelines on the information to be contained in environmental impact statements, 2nd Report 1998, Environmental Protection Agency.
- 2) Measurement of Particulate Precipitations: Determination of Dust Precipitation with collecting pots made of glass (Bergerhoff Method) or Plastic: VDI 2119: Part 2.
- 3) Environmental Engineers Handbook, Second Edition, David H.F. Liu and Bela G. Liptak, Lewis, 1996.
- 4) Standard Methods for the examination of water and wastewater, 20th Edition, published by the American Public Health Association, 1998

Appendix 2

Photographs of Dust monitoring stations on site

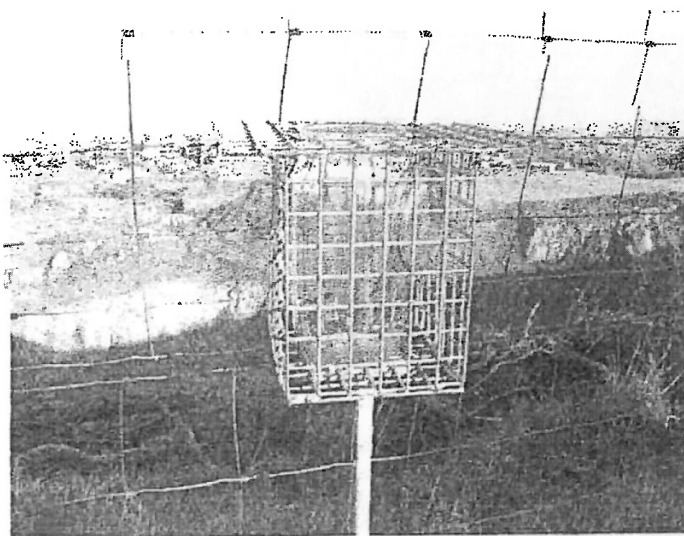
Dust monitoring location D1.



Dust monitoring location D2.



Dust monitoring location D5.



B0HP/CEM/23/A

Analysing
Testing
Consulting
Calibrating

TEST REPORT



Client:
P & S Quarry
Drumuck
Stradone
Co.Cavan

BHP Ref No.: 102681
Order No.:
Date Received: 23rd February 2012
Date Tested: 28th February 2012
Test Specification: Noise Monitoring

BHP
New Road
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Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpцем2@bhp.ie

FAO Declan Smith

Item: Noise survey at Noise Sensitive Locations at the P & S quarry operation at Mullymagowan, Stradone, Co.Cavan.

For and on behalf of BHP Ltd.

Pat O'Sullivan
Date Issued: 28th February 2012
Supplement to report No. N/A

Test results relate only to this item. This test report shall not be duplicated except in full and with the permission of the test laboratory

1.0 Scope of survey

At the request of P&S Quarries, BHP undertook noise monitoring at their operation in Mullymagowan, Stradone, Co.Cavan. The purpose of this survey was to provide P&S Quarries with the noise data and analysis required for part of their planning requirements.

This report deals with six noise sensitive locations in the area around P & S quarries in Stradone, Co.Cavan.

2.0 Survey approach

A Cirrus 831A Type 1 sound level meter was used to monitor noise levels. Monitoring and the interpretation of acquired data are to the following standards:

- British Standard: BS 7445 Part 1: 1991 (ISO 1996-1: 1982) Description and measurement of Environmental Noise. Part 1. Guide to quantities and procedures.
- British Standard: BS 7445 Part 2: 1991 (ISO 1996-2: 1987) Description and measurement of Environmental Noise. Part 2. Guide to the acquisition of data pertinent to land use.
- British Standard: BS 7445 Part 3: 1991 (ISO 1996-3: 1987) Description and measurement of Environmental Noise. Part 3. Guide to application to noise limits.

30-minute daytime levels were measured at six noise sensitive locations. These locations were labelled N1, N2, N3, N4, N5 and N6 and are identified on the map included in Appendix A.

Appendix B contains photographs of noise monitoring equipment at each monitoring point.

3.0 Date of sampling

BHP Laboratories conducted daytime sampling on the 23rd of February 2012.

4.0 Results

4.1 Noise levels:

Levels are presented on the following pages.

4.2 Broadband analysis:

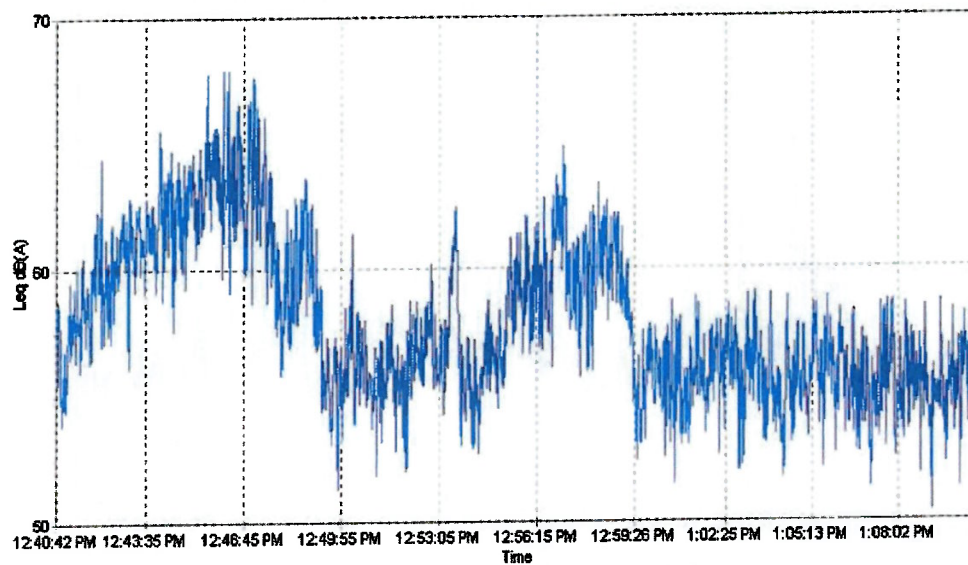


Fig.1: Broadband Analysis at N1 (daytime).

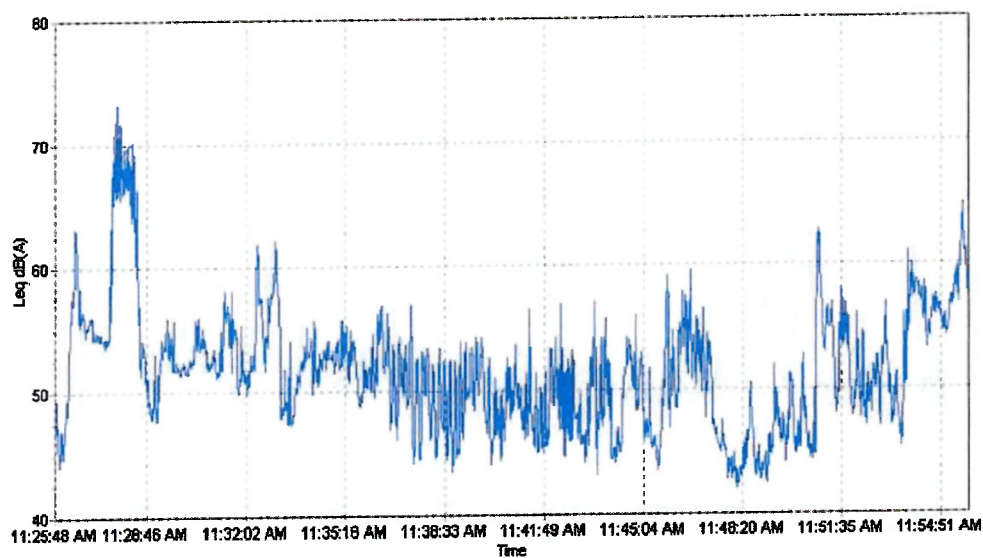


Fig.2: Broadband Analysis at N2 (daytime).

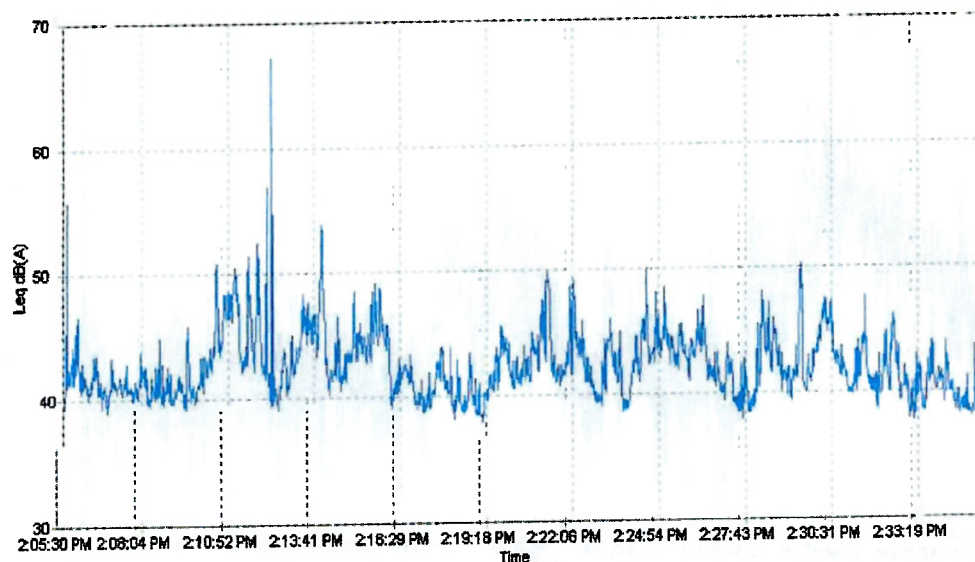


Fig.5: Broadband Analysis at N5 (daytime).

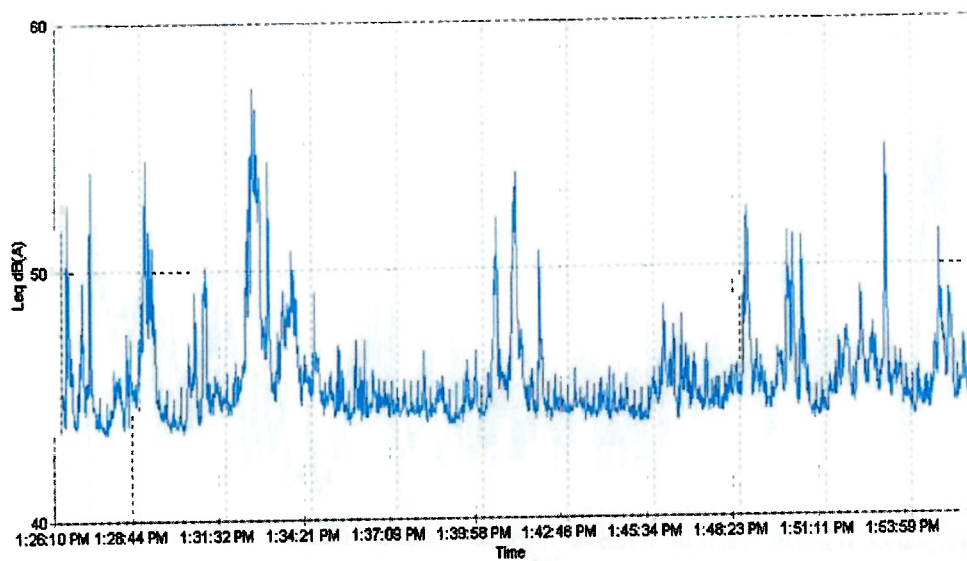


Fig.6: Broadband Analysis at N6 (daytime).

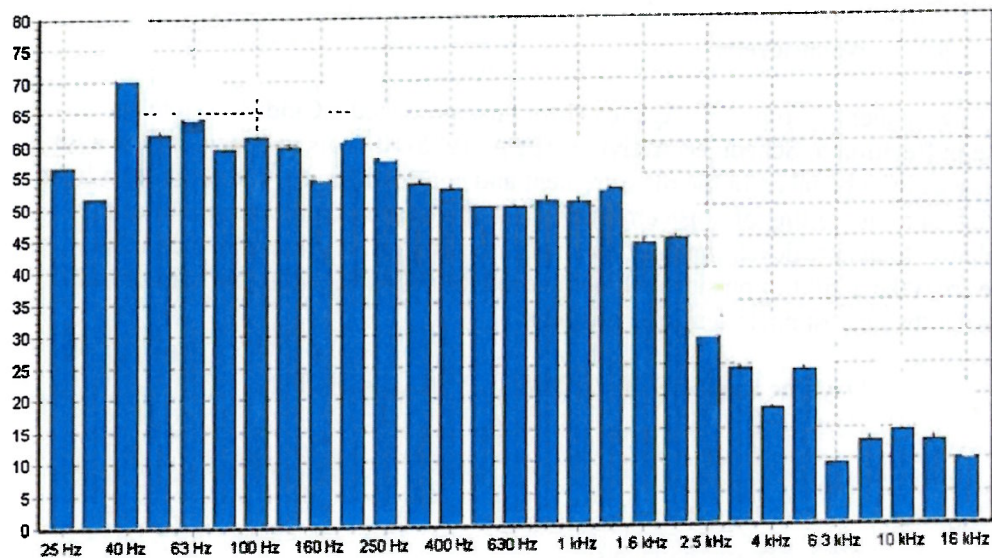


Fig.10: 1/3 Octave Frequency analysis at N3 (daytime)

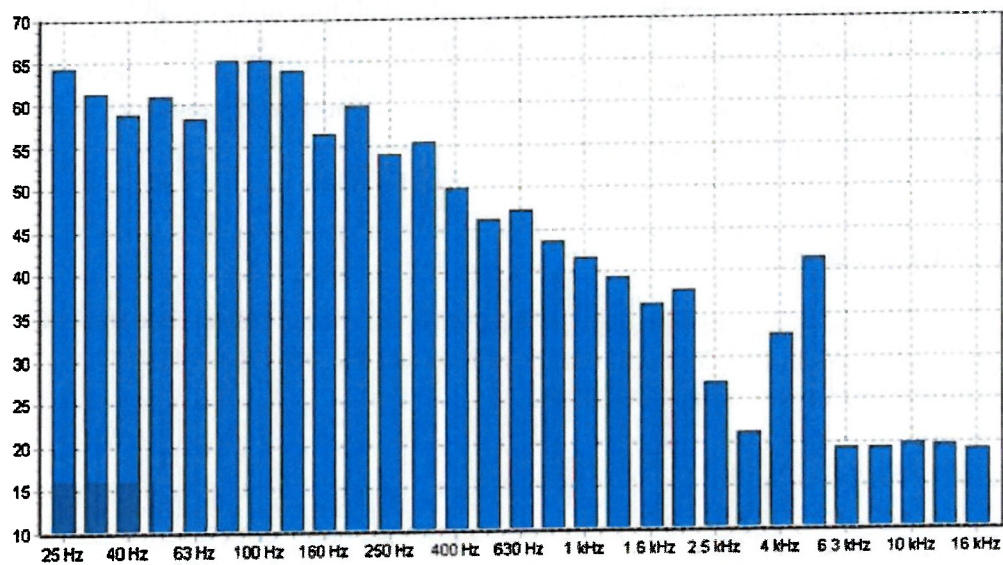


Fig.11: 1/3 Octave Frequency analysis at N4 (daytime)

5.0 Interpretation of results

5.1 Noise levels;

The Environmental Protection Agency (EPA) has produced a Guidance Note for Noise in Relation to Scheduled Activities (EPA, 1996). It deals in general terms with the approach to be taken in the measurement and control of noise, and provides advice in relation to the setting of noise emission limit values and compliance monitoring. In relation to quarry developments and ancillary activities, it is recommended that noise from the activities on site shall not exceed the following noise emission limit values at the nearest noise sensitive receptor:

Daytime Limit (08:00-20:00 hrs) $L_{Aeq} < 55\text{dB}$

5.1.1 Day-time levels :

As can be seen in section 4.1, L_{Aeq} levels for all noise sensitive locations for this most recent survey are less than the day time limit of 55dB at all locations, except for locations N1 and N2. The boundary is very close to site activities and is reflective more of occupational rather than nuisance environmental noise. Very similar levels of noise were noted during previous surveys. There was no evidence of a tonal or impulsive component to the recorded noise.

6.0 Conclusions

The noise contribution made by the quarry plant does not exceed the daytime limit of 55dB at the noise sensitive locations outside of locations N1 and N2 and is more reflective of process or occupational noise.

Appendix B

Photographs of Noise Monitoring equipment on-site

Noise monitoring equipment at N 1 (looking towards the operation)



Noise monitoring equipment at N1 (looking away from the operation (boundary))



Noise monitoring equipment at N3 (looking towards the operation)



Noise monitoring equipment at N3 (looking away from the operation (boundary))



Noise monitoring equipment at N5 (looking towards the operation)



Noise monitoring equipment at N5 (looking away from the operation)



References

- 1: Environmental Quality Objectives (Noise in Quiet Areas) Synthesis Report, EPA, 2000.
- 2: Environmental Protection Agency NSW, 2002. Draft Noise Guide for Local Government.
- 3: EU, 2002. Directive 2002/49/EC of the European Parliament and of the Council of June 25 2002 relating to the assessment and management of environmental noise. Official Journal of the European Communities, L189/12-25, 18.7.20
- 4: ISO 9613, 1996(E). Attenuation of Sound during Propagation Outdoors. Part 1. Calculation of the Absorption of Sound by the Atmosphere. Part 2. General Method of Calculation.
- 5: Environment Agency UK, 2001. Technical Guidance Note IPPC H3. Draft Horizontal Guidance for Noise Part 2, Noise Assessment and Control.
- 6: Environmental Management Guidelines: Environmental Management in the Extractive Industry (non-scheduled minerals), EPA, 2006.
- 7: Guide to Predictive Modelling for Environmental Noise assessment published by the National Physics Laboratory, UK, 2009.

2022 Dust and Noise Monitoring

Dust Deposition Monitoring

8.58 The results of the dust deposition monitoring are presented in **Table 8-4** below.

Table 8-4
Dust Deposition Monitoring Results

Monitoring Period		D1 (mg/m ² /day)	D2 (mg/m ² /day)	D3 (mg/m ² /day)	D4 (mg/m ² /day)
23/09/2022	25/10/2022	59	88	153	53
25/10/2022	2/11/2022	42	27	3	Knocked over

8.59 As it will be noted, the recorded baseline dust deposition rates at Mullymagowan Quarry are all below 350 mg/m²/day for September/October 2022.

Meteorology: Dispersion of Emissions

8.60 The most important climatological parameters governing the atmospheric dispersion of particles are as follows:

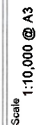
- **Wind direction:** determines the broad transport of the emission and the sector of the compass into which the emission is dispersed; and
- **Wind speed:** affects ground level emissions by increasing the initial dilution of particles in the emission. It will also affect the potential for dust entrainment.

8.61 Rainfall is also an important climatological parameter in the generation of dust; a sufficient amount of rainfall can suppress dust at the source and eliminate the pathway to the receptor. According to Arup (1995) rainfall greater than 0.2mm per day is sufficient to suppress dust emissions.

Local Wind Speed and Direction Data

8.62 The closest weather station with sufficient records of wind direction and wind speed considered representative of conditions experienced at the application site is Mullingar Meteorological Station.

8.63 A windrose for the average conditions recorded at Mullingar over a ten-year period is presented below in **Figure 8-2**. The predominant wind direction is from the south-western quadrant. Moderate to high-speed winds (>2 m/s) occur for approximately 76.2% of the time.



- 10.49 At the measurement positions, the following noise level indices were recorded:
- LAeq,T is the A-weighted equivalent continuous noise level over the measurement period, and effectively represents an “average” value.
 - LA90,T is the A-weighted noise level exceeded for 90% of the measurement period. This parameter is often used to describe the background noise.
 - LA10,T is the A-weighted noise level exceeded for 10% of the measurement period. This parameter is often used to describe traffic noise.
- 10.50 The monitoring periods chosen are considered to give representative daytime noise levels at the nearest noise sensitive receptors.
- 10.51 During the surveys, the sound level meter was located in free-field conditions (i.e., at least 3.5m from the nearest vertical reflecting surface, with the microphone approximately 1.5m above ground level).
- 10.52 All noise levels are recorded in ‘A-weighted’ decibels, dB(A). A-weighting is the process by which noise levels are corrected to account for the non-linear frequency response of the human ear. All noise levels are quoted in dB(A) relative to a sound pressure of 20 Pa.

Vibration

- 10.53 Blasting operations at the established quarry have been monitored at neighbouring residences by Irish Industrial Explosives. Groundborne vibration and air overpressure levels have been and are measured and recorded for each blast. The blast monitoring locations are shown on **Figure 10-1**.

Sources of Information

- 10.54 Baseline information was gathered through a combination of desk-based study and technical assessments consistent with current standard methodologies and published best practice guidelines, to provide relevant data to allow an assessment of likely significant effects of the proposed development on sensitive receptors within the zone of influence.

Field Survey / Monitoring

Noise

- 10.55 The noise monitoring location used for the purposes of the baseline noise survey, shown in **Figure 10-1**, comprise the following:
- N1 – northeast of the application area on L3500 road;
 - N2 – east of the application area on L3500 road;
 - N3 – south of the application area on L7503 road;
 - N4 – northwest of the application area on L7503 road; and
 - N5 – northeast of the application area on R165 road.
- 10.56 Noise monitoring results are provided in **Table 10-7**; summary of the measured levels and the relevant receptors are provided in **Table 10-8**.
- 10.57 The noise monitoring at the noise sensitive receptors confirm compliance with the existing noise emission limits, with the monitoring results presented in **Table 10-7**.

Table 10-7
Summary of Measured Noise Levels, Free Field dB

Date	Location	LAeq	L10	L90
02/11/2022	N1	47.5	42.3	36.5
02/11/2022	N2	59.5	45.2	35.1
02/11/2022	N3	51.2	47.6	39.1
02/11/2022	N4	43.2	46.2	35.5
02/11/2022	N5	45.5	45.2	37.9

Table 10-8
Summary of Measured Noise Levels and Relevant Receptors, Free Field dB

Location	Period	Receptors	LAeq
N1	Daytime	R8, R9, R10, R11, R12, R13	47.5
N2	Daytime	R14	59.5
N3	Daytime	R3, R4, R5, R6, R7	51.2
N4	Daytime	R1, R2	43.2
N5	Daytime	R33, R34, R35	45.5

Vibration

10.58 Ground vibration and air overpressure are measured for each blast. The blast monitoring locations are shown on **Figure 10-1** and described as follows:

- V1 – residence R3
- V2 – at quarry weighbridge

10.59 **Table 10-9** details blast monitoring results at the quarry. The monitoring was carried out using a mobile vibrograph unit.

Table 10-9
Blast Monitoring Results

Date	Position	Location	PPV			AOP	Resultant
			(L)	(V)	(T)	(dB)	mm/s
07/10/2008	V1	Residence R3	2.07	3.24	4.22	117	5.04
25/11/2008	V2	Quarry Weighbridge	1.40	2.07	1.80	113	2.34
25/11/2008	V1	Residence R3	0.97	1.17	1.21	113	1.44
16/02/2009	V	Residence R3	2.19	2.77	2.30	110	3.75
10/06/2009	V1	Residence R3	4.19	3.99	4.25	111	6.40
14/08/2009	V1	Residence R3	3.32	3.67	6.06	100	6.65

NOTES

Ordnance Survey Ireland 1:50,000 mapping sheets 1818 & 1819 from
 Ordnance Survey Ireland Licence No. CYA50248253 (c) Ordnance Survey Ireland and Government of Ireland

LEGEND

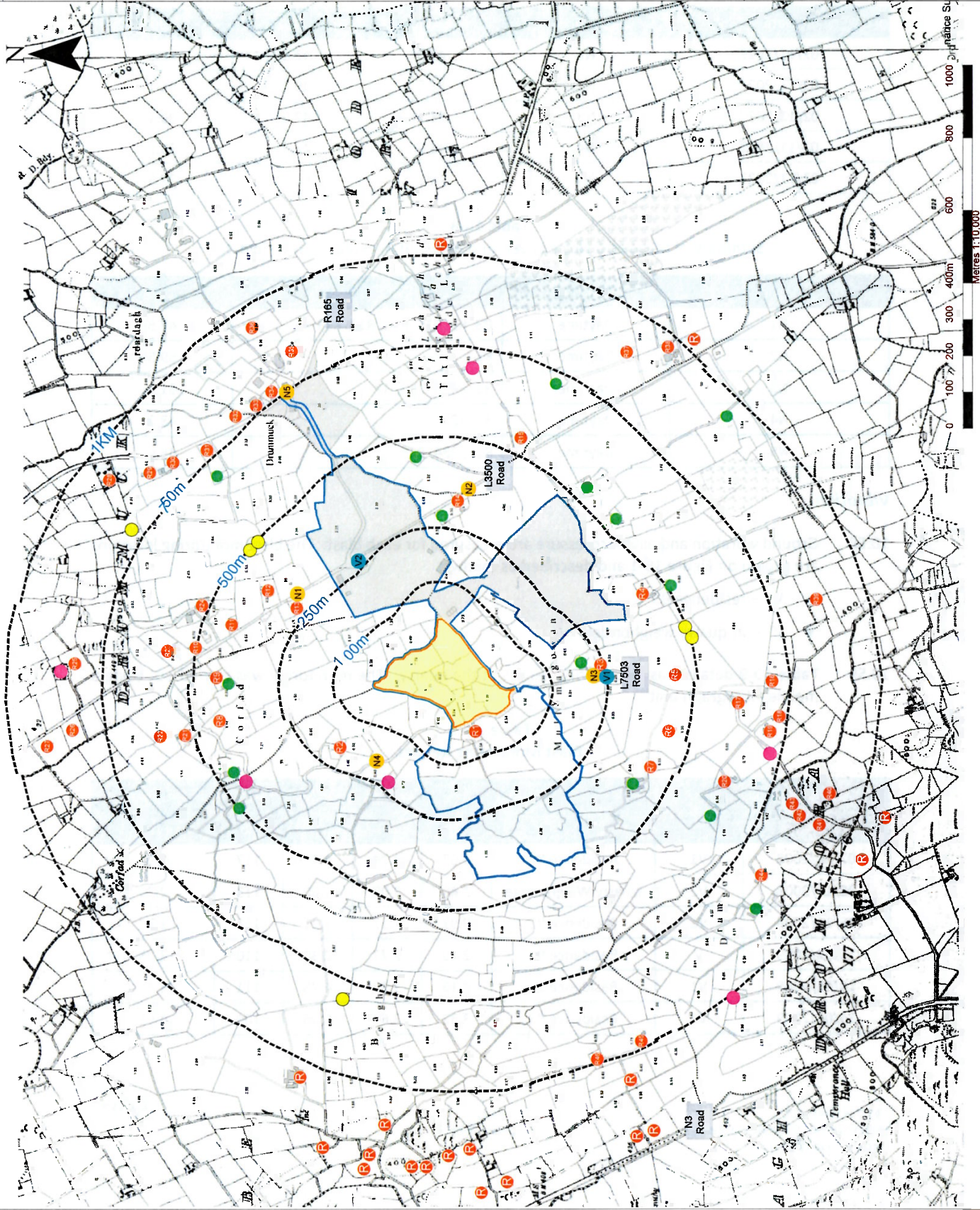
- APPLICANT'S LAND INTEREST
BOUNDARY (c. 39.7 ha.)
- APPLICATION AREA (c. 4.9 ha.)
- EXISTING PLANNING PERMISSION
P. REF. 071827
- PLANNING PERMISSION AREA
P. REF. 12101
- DISTANCE OFF-SET FROM
PLANNING APPLICATION
BOUNDARY
- RESIDENCE LOCATIONS
- DERELICT HOUSE
- AGRICULTURAL BUILDINGS
- ARCAEOLOGY SITES &
MONUMENTS
- EXISTING BASELINE
ENVIRONMENTAL MONITORING
LOCATIONS FOR NOISE
- PREVIOUS/ ENVIRONMENTAL
MONITORING LOCATIONS FOR
BLASTING VIBRATION

SLR
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 www.slrconsulting.com

P&S CIVIL WORKS LTD.
 Environmental Impact Assessment Report
 QUARRY AT MULLYMAGOWAN,
 STRADONE, CO. CAVAN
 NOISE / VIBRATION MONITORING
 LOCATIONS & RECEPTORS

FIGURE 10-1

Scale 1:10,000 @ A3
 Date FEBRUARY 2023



March 2006 - May 2007 Dust Monitoring Results

BHP/CEM/23/A

TECHNICAL REPORT

Analysing
Testing
Consulting
Calibrating



Client:

P & S Quarry
Drumuck
Stradone
Co.Cavan

BHP Ref No.: 76565

Order No.:

Date Received: 11th April 2007

Date Tested: 11th April 2007

Test Specification: Nil

BHP

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Fax +353 61 455447

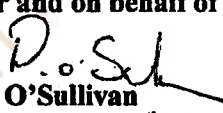
E Mail bhpcem2@bhp.ie

FAO Declan Smith

**Item: Dust deposition results for monitoring period June 2006- March 2007 using
Dust deposit gauges as per VDI 2119 Part 2, at the P & S quarry operation at
Drumuck, Stradone, Co.Cavan.**

Compilation of Data to date along with a dust management plan

For and on behalf of BHP Ltd.


Pat O'Sullivan

Date Issued: 11th April 2007

Supplement to report No. N/A

Test results relate only to this item. This test report shall not be duplicated except in full and with the permission of the test laboratory

Glossary

Section 1: Compilation of Dust Monitoring Results to date.

- 1.0 Introduction
- 2.0 Sampling
 - 2.1 Sampling locations
 - 2.2 Quality control system
- 3.0 Results
- 4.0 Conclusions
- 5.0 References

Appendix 1 Site map showing sampling locations.

Appendix 2 Photographs of dust gauges at sampling locations.

Section 2: Dust Management Plan for P&S Quarry

- 1.0 Proposed Dust Mitigation Measures
- 2.0 Dust Control Measures
- 3.0 Site Dust Control Checklist
- 4.0 Predicted Annual Quantities of Dust

Section 1: Compilation of Dust Monitoring Results to date.

Cavan Planning Authority - Inspection Purposes Only!

1.0 Introduction

At the request of P & S Quarry, BHP conducted a monthly dust-monitoring programme at the quarry operation at Drumuck, Stradone, Co. Cavan.

All sampling and analysis was conducted in accordance with Germany Standard VDI 2119 using Bergerhoff dust deposition gauges. Details of sampling procedures are given in the bulk of the report.

The EPA Publication 'draft guidelines on the information to be contained in environmental impact statements' has been used as a reference for this report.

2.0 Sampling

The sampling was carried out in accordance with VDI 2119 Part 2 using Bergerhoff dust deposition gauges. The gauges were in place between the 30th of May 2006 and the 27th of March 2007.

2.1 Sampling Locations

The gauges were all placed at ground level. The locations of the sampling sites are presented in appendix 1. Photographs of the dust gauges on site are presented in appendix 2.

2.2 Quality Control

The Chemical and Environmental Monitoring laboratory (CEM) operates a rigorous approach to quality assurance. The central elements of the quality control system are outlined.

a) Chain of Custody and Client Instruction

Every sample received at BHP laboratories is inspected by the laboratory manager Pat O'Sullivan or by site manager Paul O' Sullivan.

A client instruction is required to start analysis.

All samples are then given a unique BHP reference number before storage between 0 and 4°C.

b) Training and Competence

All analysts conducting work at BHP are fully trained. Training involves demonstration of accuracy and precision of analysis. All analysts are subject to periodic reviews in their training. All training is fully documented and retrievable.

c) Validation

BHP procedures are subjected to a rigorous validation which includes the following;

- Evaluation of instrument detection limits and limits of detection.
- Evaluation of operator characteristics including bias, precision and uncertainty of measurement.
- Demonstration of Linearity.
- Evaluation of the standard error on the mean and evaluation of any systematic biases.
- Evaluation of total uncertainty and uncertainty budgets.
- Evaluation of the uncertainty in measurement at a regulatory limit.
- Demonstration of repeatability.
- Evaluation of Matrix effects.

d) Quality Control (Skewhart) Charts

Analysis in the CEM laboratory is monitored using control charts. Each analysis will have at least 3 charts monitoring;

- Certified Reference Material recovery
- Precision of analysis
- Accuracy of analysis

Batches of analyses are rejected if any of the control charts indicate a loss in control.

e) Interlaboratory Testing

The CEM laboratory are members of the W.R.C Aquacheck Scheme. The Laboratory also participates in the Environmental Protection Agency's Intercalibration Programme and is listed on the Agency's Register of Quality Approved Testing Laboratories.

The Laboratory participates on a bi-annual basis in the British Gas Interlaboratory Proficiency Schemes for the analysis of contaminated soils and waters.

3.0 Results

The results are presented in the following table.

BHP Ref	Monitoring Period	D1 Deposition (mg/m ² /day)	D2 Deposition (mg/m ² /day)	D3 Deposition (mg/m ² /day)
73925	30/05/06- 29/06/06	951.7	338.9	230
74149	29/06/06- 27/07/06	125.6	1073.9	255
74402	27/07/06- 29/08/06	748.9	387.2	313.9
74683	29/08/06- 28/09/06	70.5	988.9	182.2
74913	28/09/06- 26/10/06	130.6	148.9	373.9
75192	26/10/06- 27/11/06	159	164.7	377.1
75424	27/11/06- 21/12/06	63.8	107.1	37.1
75649	21/12/06- 25/01/07	118.6	125.3	128.9
76151	25/01/07- 27/02/07	147.6	352.4	14.7
76445	27/02/07- 27/03/07	25	601.1	511.7
	Average	254.1	428.8	242.5

The average level of dust deposition over the entire site is 308.5 mg/m²/day.

4.0 Conclusions

P & S Quarry has not provided a regulatory limit for dust deposition to BHP Laboratories for assessment against and thus all values are for information purposes only.

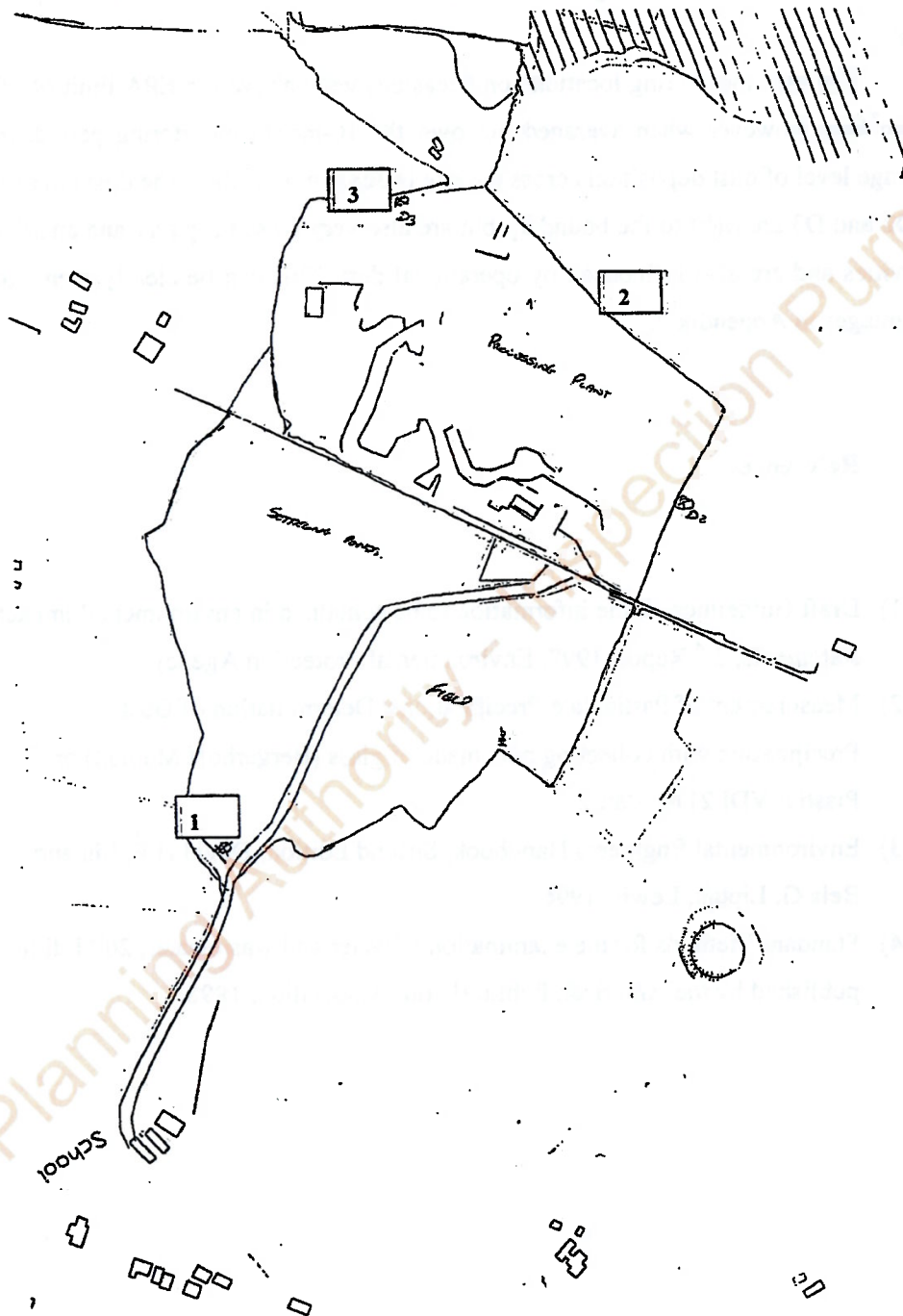
The dust monitoring locations on occasions were above the EPA limit of 350 mg/m²/day, however when averaged out over the 10-month monitoring period, the average level of dust deposition across the site is 308.5 mg/m²/day. The dust monitors at D2 and D3 are tight to the boundary but are also very close to quarry and ancillary activities and are also influenced by operational dust. This can be clearly seen from the images in Appendix 2.

5.0 References

- 1) Draft Guidelines on the information to be contained in environmental impact statements, 2nd Report 1998, Environmental Protection Agency.
- 2) Measurement of Particulate Precipitations: Determination of Dust Precipitation with collecting pots made of glass (Bergerhoff Method) or Plastic: VDI 2119: Part 2.
- 3) Environmental Engineers Handbook, Second Edition, David H.F. Liu and Bela G. Liptak, Lewis, 1996.
- 4) Standard Methods for the examination of water and wastewater, 20th Edition, published by the American Public Health Association, 1998.

Appendix 1

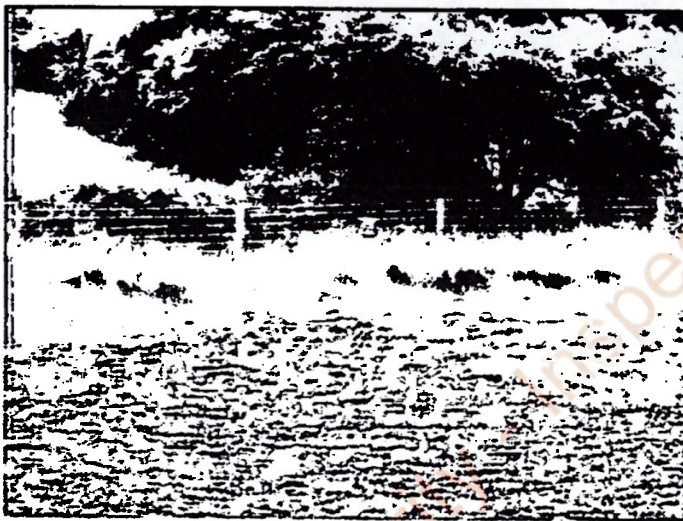
Site Map showing Dust Monitoring Locations



Appendix 2:

Photographs of Dust monitoring stations on site

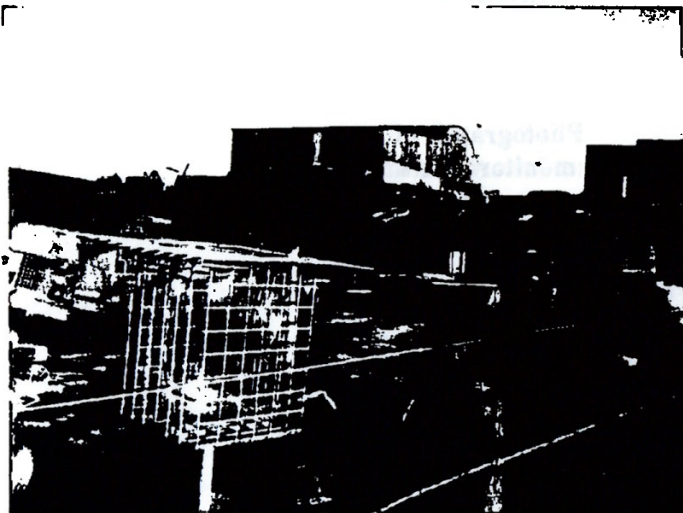
Dust monitoring location D1.



Dust monitoring location D2.



Dust monitoring location D3.



Cavan Planning Authority - Inspection Purposes Only!

Section 2: Dust Management Plan for P&S Quarry

Cavan Planning Authority - Inspection Purposes Only!

1.0 Proposed Dust Mitigation Measures

BHP Laboratories have been requested to prepare a dust reduction and management plan for the operational lifetime of the proposed facility.

A dust management plan is an essential part of controlling dust problems during the operational lifetime of the proposed facility. Elements of this plan may be incorporated into any future environmental management system of the proposed facility.

BHP Laboratories are approved by the Irish Concrete Federation as an approved testing laboratory and consultancy for this type of work. BHP Laboratories also holds extensive ILAB accreditation to ISO 17025 and is involved in wide sectors of chemical, environmental and construction related testing and consultancy.

2.0 Dust Control Measures

P& S Quarry is ensuring that all equipment installed in the operation is designed to the latest international best practice for extraction. Features of this equipment are the control and management of dust.

The main potential sources of dust emissions from the extraction of aggregate and processing of, are the raising of dust by vehicles entering and exiting the site.

The table below illustrates the main transfer points and technology used to abate any dust emissions.

Source	Control
Raising of dust as vehicles enter and exit the site.	Wheel Wash for exiting trucks.

Presented overleaf is a site dust control checklist for incorporation into the environmental management system for the proposed facility. It may also be used standalone as a tool for managing any dust emissions. It encompasses all aspects of operational site dust control under the following headings:

- Operational Site Measures
- Storage Piles/General Material Storage
- Hauled Materials
- Paved Road Access/Egress
- Monitoring

3.0 Site Dust Control Checklist

P & S Quarry			
Operational Site Measures	Yes	No	Comments
Areas to be protected are fenced or blocked off			
Physical Barriers are correctly placed and maintained			
Site Traffic is controlled and entry/exit points correct			
Watering sprays are utilised during windy conditions or when needed			
Vegetation retention and revegetation measures are being carried out as required			
Storage Piles/ General Material Storage			
Piles are a suitable height, width and slope and placed in areas protected from wind			
Activity is limited to the downward side of the pile and the last in-first out system is used			
Watering sprays are utilised on piles if wind is lifting the material			
Vegetative stabilisation is occurring on piles left untouched for greater than 28 days			
Chemical stabilisation is occurring on piles left untouched for greater than 28 days			
Dust Extractors are examined for blockages and where required filters replaced.			
Supply of dust filters is in stock			
Hauled Materials			
Watering sprays are used during material loading and unloading			
Loads are kept within designated load limits			
Bed liners and load covers are used to prevent material spillage from trucks			
Paved Road Access/Egress			
Site access/exit is stabilised through a concrete or equivalent surface			
Vehicle wheels are washed or brushed prior to leaving the site			
Material spills on roads and pathways are cleaned up immediately			
Monitoring			
Bergerhoff or equivalent dust monitors in place			
This information is true and correct to the best of my knowledge			
Name of the person inspecting the site			
Signature			
Date of Site Inspection			

4.0 Predicted Annual Quantities of Dust

The current band of environmental dust emissions based on previous dust monitoring reports supplied by BHP over a period of 10 months during 2006-2007 is between 14.7 and 1073.9 mg/m²/day with an average of 308.5 mg/m²/day dust deposition over the area.

The predicted environmental dust emissions for the proposed development using the data from the 10-month monitoring period is not expected to rise from the figure already generated.

From our experience of monitoring such facilities with well-managed dust control and suppression systems in place, dust levels will be consistently under the regulatory limit.

August 2007 - September 2008 Dust Monitoring Results

7.3.4 Mitigation Measures

All blasting as is the current practise will be carried out by highly trained shot blasters and blasting engineers. Regular monitoring of blasts will also take place and records be made available to the public and Local Authority for scrutiny.

7.4 Dust

7.4.1 Introduction

Dust emissions from quarrying activities arise from fugitive dust arising due to soil stripping, excavation, stock piling, transportation, and processing. Fugitive dust emissions are primarily affected by wind speeds, wind strengths and low surface moisture levels. The minimum wind speed required to transport dust from a quarry is referred to as the "pick up velocity". The degree of nuisance caused by dust emissions will depend on the following factors:

- Origin of dust
- Amount of dust generated
- Mitigation measures taken
- Intensity and duration of exposure
- Characteristic particle size distribution of the dust
- Prevailing atmospheric conditions
- Sensitivity of the receiving environment

A dust monitoring and impact assessment report has been compiled by BHP.

BHP conduct a monthly dust-monitoring programme at the existing quarry operation at Drumuck, Stradone, Co. Cavan. For the last number of months, baseline dust monitoring has also taken place at locations around the proposed extension area. Based on the results of this monitoring, a report was compiled to indicate the likely dust emissions arising from the proposed quarrying extension.

All sampling and analysis was conducted in accordance with Germany Standard VDI 2119 using Bergerhoff dust deposition gauges. Details of sampling procedures are given in the bulk of the report.

The EPA Publication 'draft guidelines on the information to be contained in environmental impact statements' has been used as a reference for this report.

7.4.1 Sampling

The sampling was carried out in accordance with VDI 2119 Part 2 using Bergerhoff dust deposition gauges. The data assessed from the gauges was during the period between the 28th of August 2007 and the 26th of September 2009. Ongoing monitoring is still taking place. The gauges were all placed at ground level. The locations of the sampling sites are presented in the dust monitoring plan included in attachments.

7.4.2 Quality Control

The Chemical and Environmental Monitoring laboratory (CEM) operates a rigorous approach to quality assurance. The central elements of the quality control system are outlined.

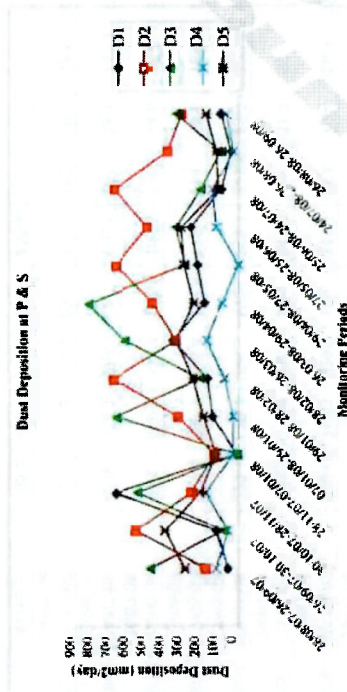
- Chain of Custody and Client Instruction
- Training and Competence
- Validation
- Quality Control (Skewhart) Charts
- The CEM laboratory are members of the W.R.C. Aquacheck Scheme.

7.4.3 Results

The results are presented in the following table 3. Results and analysis reveal that the average level of dust deposition over the entire site is 259.2 mg/m²/day.

Table 3. Dust Monitoring Results

BHP Ref	Monitoring Period	D1	D2	D3	D4	D5	D6	D7	D8	D9
Deposition (mg/m ² /day)										
78486	28/08/07-26/09/07	60.6	177.2	487.8	120	293.9	135	34.7	102.5	5.8
78888	26/09/07-30/10/07	117.8	566.7	81.1	57.8	404.4	76.5	20.9	161	26.8
79283	30/10/07-28/11/07	680.6	257.2	557.8	176.7	207.8	145	10.3	78.4	17.6
79685	28/11/07-07/01/08	12.5	127.1	6.3	29.6	119.6	33.7	22.8	33.9	23.9
79978	07/01/08-29/01/08	138.6	331.8	678.8	30.3	190.2	198.6	5.8	104.8	31.6
80435	29/01/08-28/02/08	165.6	692.2	207.2	75	247.2	45.7	76.6	143	7.4
80786	28/02/08-26/03/08	360.6	343.3	629.4	170	343.3	65.8	10.4	88.5	79.3
81261	26/03/08-29/04/08	182.8	473.9	836.1	89.4	243.9	100.3	31.7	59	61.9
81601	29/04/08-27/05/08	222.1	679.4	293.3	Void	298.3	241.8	15.7	122.6	106.3
82016	27/05/08-25/06/08	259.4	503.3	344.4	117.8	315	114	78.6	165.5	57.3
82437	25/06/08-24/07/08	93.3	688.3	202.7	138.8	105.5	198	14.6	96.3	91.4
82894	24/07/08-26/08/08	40.6	388.3	92.8	26.1	116.1	104.6	88.1	147.7	57.8
83345	26/08/08-26/09/08	93.3	309.2	341.1	65	172.8	187	100.3	48.6	84.8
	Average	185.2	426	358.4	91.4	235.2				



7.4.4 Potential Impacts

Fugitive dust emissions can adversely impact on the surrounding environment around a quarry in a number of ways. Fugitive dusts are perceived by people inhabiting the local area as a nuisance, coating material and property in a film of dust, damaging paint work and fabrics. Dusts deposited on the public road can give rise to dangerous driving conditions especially if followed by rainfall. Deposition of dusts within the local environment may also result in the deterioration of flora and fauna habitats. Most importantly fugitive dust emissions present a potential health hazard to people, especially susceptible to pulmonary ailments.

7.4.5 Proposed Dust Mitigation Measures

BHP Laboratories have been requested to prepare a dust reduction and management plan for the operational lifetime of the proposed facility.

A dust management plan is an essential part of controlling dust problems during the operational lifetime of the proposed facility. Elements of this plan may be incorporated into any future environmental management system of the proposed facility.

BHP Laboratories are approved by the Irish Concrete Federation as an approved testing laboratory and consultancy for this type of work. BHP Laboratories also holds extensive ILAB accreditation to ISO 17025 and is involved in wide sectors of chemical, environmental and construction related testing and consultancy.

7.4.6 Dust Control Measures

P&S Quarry is ensuring that all equipment installed in the operation is designed to the latest international best practice for extraction. Features of this equipment are the control and management of dust.

The main potential sources of dust emissions from the extraction of aggregate and processing of stone is the raising of dust by vehicles entering and exiting the site.

- Included in appendices is a site dust control checklist which should be incorporated into the environmental management system for the facility.

7.4.7 Predicted Annual Quantities of Dust

The current band of environmental dust emissions based on previous dust monitoring reports supplied by BHP over a period of 13 months during 2007-2008 is between 14.7 and 1073.9 mg/m³/day with an average of 259.2 mg/m³/day dust deposition over the area.

The predicted environmental dust emissions for the proposed development using the data from the 13-month monitoring period is not expected to rise from the figure already generated.

From our experience of monitoring such facilities with well-managed dust control and suppression systems in place, dust levels will be consistently under the regulatory limit

7.4.8 Mitigation Measures

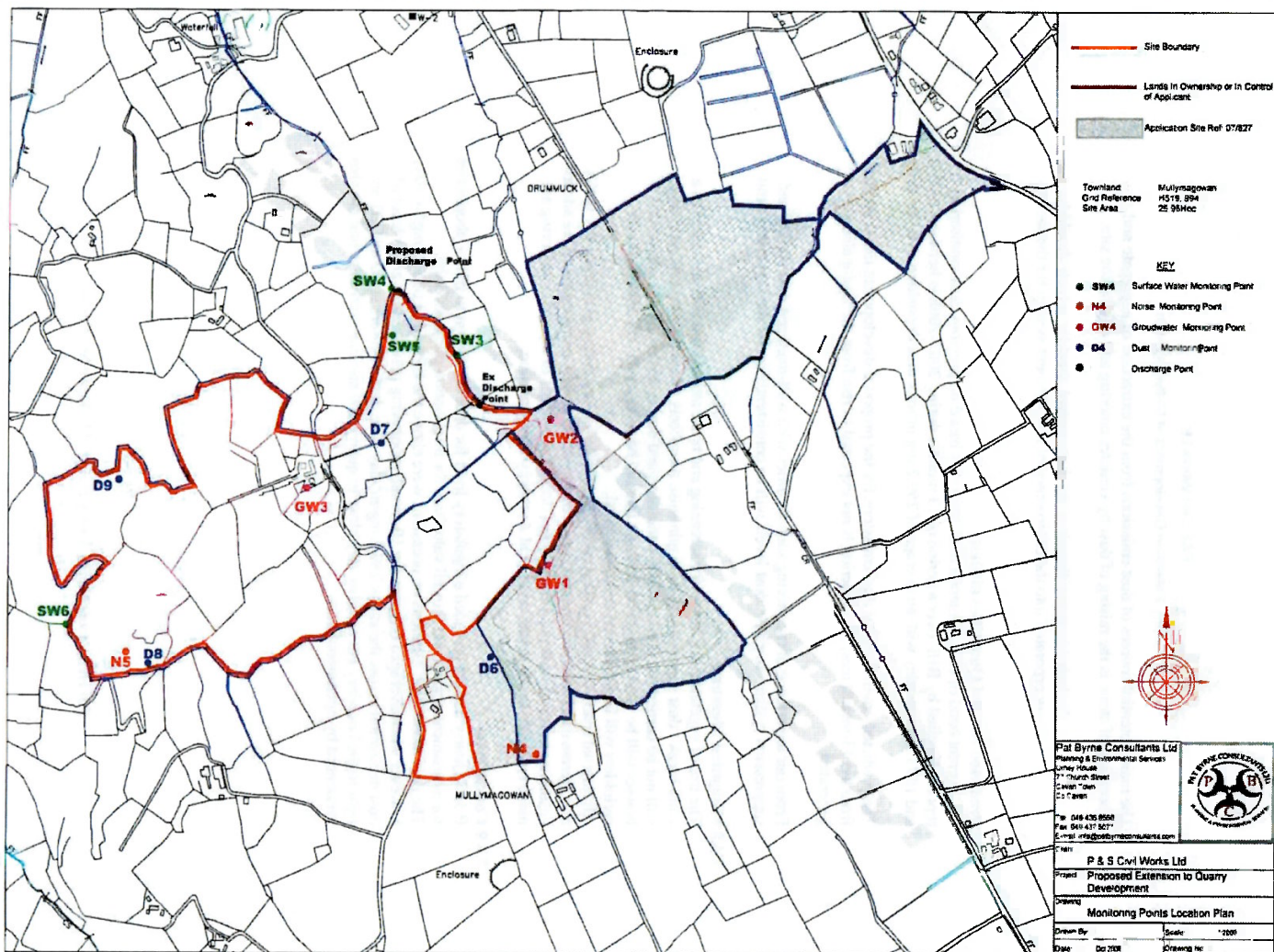
The use of vegetated soil berms for screening and noise attenuation will also serve as a wind break / dust suppressor to help minimise the effects of wind gusts. Soil stripping will not be carried out during windy conditions and during prolonged dry conditions a bowser will be used to suppress dusts on internal haulage roads. All existing water sprinklers will be monitored and maintained.

All internal roadways will be sprayed with a mobile bowser during prolonged dry spells to suppress dusts. Dust monitoring is and will be continuously carried around the site to ensure excessive dust deposition does not occur and records of all such monitoring are made available to the public and Local Authority for inspection.

7.4.9 Conclusions

P & S Quarry has not provided a regulatory limit for dust deposition to BHP Laboratories for assessment against and thus all values are for information purposes only.

The dust monitoring locations on occasions were above the EPA limit of 350 mg/m³/day, however when averaged out over the 10-month monitoring period, the average level of dust deposition across the site is 259.2 mg/m³/day. The dust monitors at D2 and D3 are tight to the boundary but are also very close to quarry and ancillary activities and are also influenced by operational dust



Noise Monitoring 10 April 2007

B0HP/CEM/23/A

TEST REPORT

Analysing
Testing
Consulting
Calibrating



Client:
P & S Quarry
Drumuck
Stradone
Co.Cavan

BHP Ref No.: 76563
Order No.:
Date Received: 10th April 2007
Date Tested: 10th April 2007
Test Specification: Noise Monitoring

BHP
New Road
Thomondgate
Limerick
Ireland
Tel +353 61 455399
Fax + 353 61 455447
E Mail bhpce2@bhp.ie

FAO Declan Smith

Item: Noise survey at Noise Sensitive Locations at the P & S quarry operation at
Drumuck, Stradone, Co.Cavan.

For and on behalf of BHP Ltd.


Pat O'Sullivan
Date Issued: 12th April 2007
Supplement to report No. N/A

Test results relate only to this item. This test report shall not be duplicated except in full and with the permission of the test laboratory

BHP CEM Laboratory

Contents

- 1.0 Scope
- 2.0 Survey Approach
- 3.0 Date of sampling
- 4.0 Results
 - 4.1 Noise levels
- 5.0 Interpretation of results
 - 5.1 Noise Levels
 - 5.1.1 Daytime levels
- 6.0 Conclusions

Appendix A: Map showing noise sensitive locations

Appendix B: Photographs indicating noise monitoring locations

1.0 Scope of survey

At the request of P&S Quarries, BHP undertook noise monitoring at their operation in Drumuck, Stradone, Co.Cavan. The purpose of this survey was to provide P & S Quarries with the noise data and analysis required for part of their planning requirements.

This report deals with three noise sensitive locations in the area around P & S quarries in Stradone, Co.Cavan.

2.0 Survey approach

A Cirrus 831A Type 1 sound level meter was used to monitor noise levels. Monitoring and the interpretation of acquired data is to the following standards:

- British Standard: BS 7445 Part 1: 1991 (ISO 1996-1: 1982) Description and measurement of Environmental Noise. Part 1. Guide to quantities and procedures.
- British Standard: BS 7445 Part 2: 1991 (ISO 1996-2: 1987) Description and measurement of Environmental Noise. Part 2. Guide to the acquisition of data pertinent to land use.
- British Standard: BS 7445 Part 3: 1991 (ISO 1996-3: 1987) Description and measurement of Environmental Noise. Part 3. Guide to application to noise limits.

30-minute daytime levels were measured at three noise sensitive locations. These locations were labelled N1, N2, and N3, and are identified on the map included in Appendix A.

Appendix B contains photographs of noise monitoring equipment at each monitoring point.

3.0 Date of sampling

Daytime sampling was carried on the 10th of April 2007.

4.0 Results

4.1 Noise levels:

Levels are presented on the following pages.

Day-time Measurements - Noise Sensitive Locations - P&S Quarry, Stradone (10th April 2007)

Location	Sampling Interval	Duration (mins)	L _{AEQ} dB	L _{A10} dB	L _{A90} dB	Wind speed m/s	Sampling notes
N1	1050-1120hrs	30	55.0	57.1	46.9	3.0-4.0	Some plant was moving about the operation between 50 and 55 dB. When the reversing sirens came on, levels reached 65 dB. Some nearby maintenance activity is between 50 and 55 dB. A truck being loaded reached 63 dB.
N2	1015-1045hrs	30	55.5	58.6	44.0	1.0-2.0	A teleporter working nearby reaches up to 65dB. Cement trucks being loaded reach between 53 and 56 dB.
N3	1205-1235hrs	30	53.6	55.2	41.3	0.1-1.0	Traffic noise from the Lavey to Bailieborough road reaches between 50 and 55 dB. Trucks entering and exiting the quarry road reach between 50 and 65 dB. (max 75 dB). The operation is audible at approximately 45 dB at this location.

5.0 Interpretation of results

5.1 Noise levels;

The noise limits for P&S Quarry, Stradone are as follows:

Daytime Limit $L_{Aeq} < 55\text{dB}$

Night time Limit $L_{Aeq} < 45\text{dB}$

5.1.1 Day-time levels :

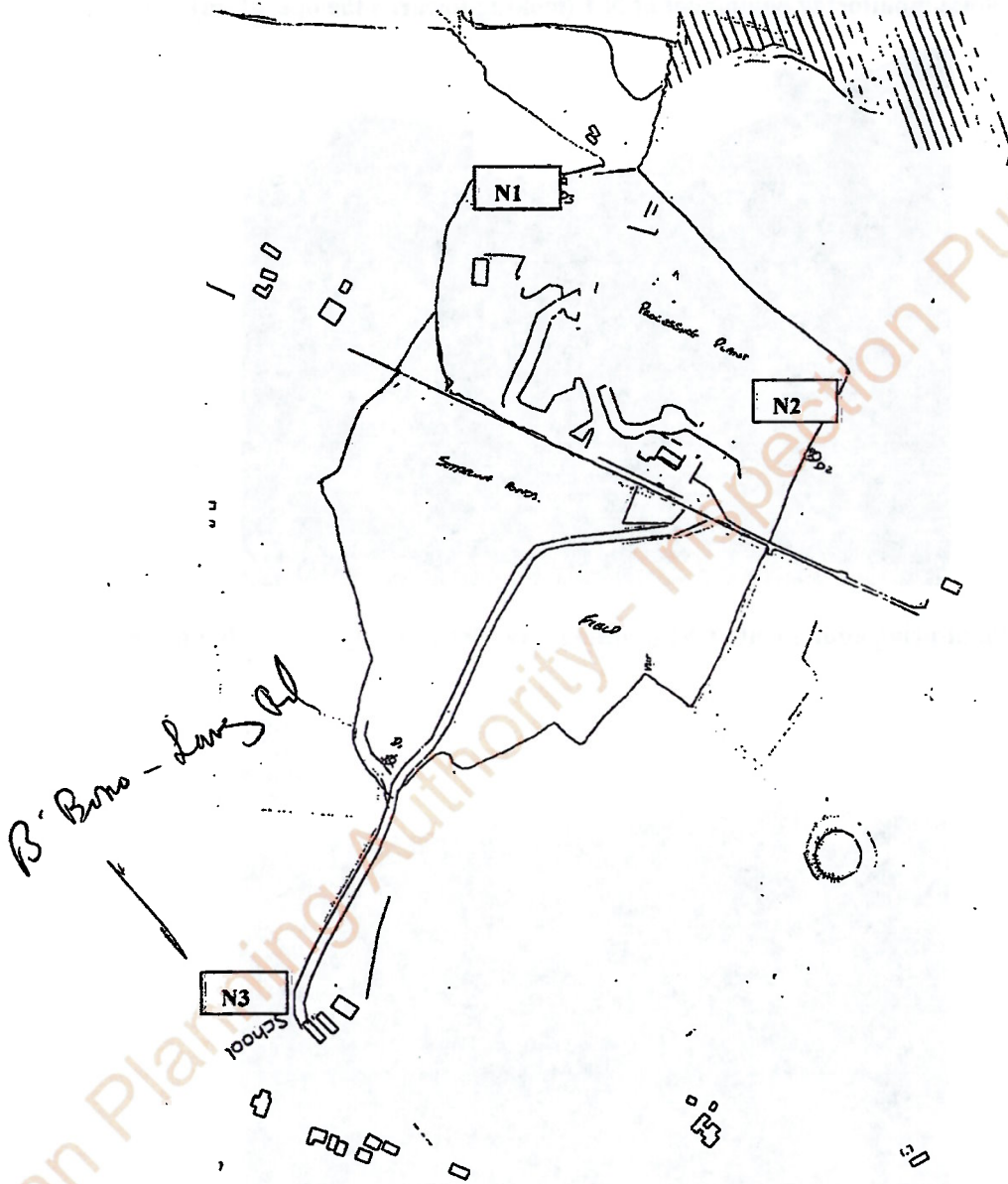
As can be seen in section 4.1, L_{Aeq} levels for all noise sensitive location sare less than the day time limit of 55dB at all locations, except for location N2 however this is only marginally so. The boundary is very close to site activities and is reflective more of occupational rather than nuisance environmental noise.

6.0 Conclusions

The noise contribution made by the quarry plant does not exceed the daytime limit of 55dB at the noise sensitive locations outside of location n2 where the exceedance is marginally and more reflective of process or occupational noise.

Appendix A

Site map showing noise sensitive locations



Appendix B

Photographs of Noise Monitoring equipment on-site

Noise monitoring equipment at N.1 (looking towards the operation)



Noise monitoring equipment at N1 (looking away from the operation (boundary))



Noise monitoring equipment at N2 (looking towards the operation)



Noise monitoring equipment at N2 (looking away from the operation (boundary))



Noise monitoring equipment at N3 (looking towards the operation)



Noise monitoring equipment at N3 (looking away from the operation (boundary))



Sampling location 2 ~~1~~
 Sampling Date 10-4-07
 Equipment Used Cirrus 3.1 SLM 1000
 Recorded By A. J. W.

DAYTIME ~~NIGHT~~

Location N 2 Time 10:15 To 10:45
 Wind Speed 1-2 m/s Precipitation Nil Other _____
 TELEPHONE WORKING NORMALLY @ UP TO 65 dBA
 CONCRETE TRUCKS BEING LOADED @ 53-55 dBA
 CRANE NOT OPERATIONAL
 LAEQ 55.5
 LA10 55.6
 LA90 44

Location N 1 Time 10:45 To 11:15
 Wind Speed 3 m/s Precipitation Nil Other _____
 WINDS BLUING LEVELS TO 55 dBA @ TIMES
 PLANT WORKING NORMALLY @ 50-55 dBA (REVERSE ENGINE @ 45 dBA)
 HANDLING ACTIVITY @ 50-55 dBA
 TRUCKS BEING LOADED UP TO 65 dBA
 CRANE NOT OPERATIONAL
 LAEQ 55
 LA10 57.1
 LA90 46.9

Location N 3 Time 11:05 To 12:35
 Wind Speed 0-1 m/s Precipitation Light Rain Other _____
 TRAFFIC NOISE FROM PUBLIC ROAD @ 50-55 dBA
 TRUCKS ENGAGING EXHAUST ON QUARRY ROAD @ 50-65 dBA
 (UP TO 75 dBA MAX)
 CRANE ACTIVITY AVAILABLE @ APPROX 45 dBA
 LAEQ 53.6
 LA10 55.2
 LA90 41.3

Location N 4 Time 12:45 To 13:15
 Wind Speed 2 m/s Precipitation Nil Other _____
 PLANT WORKING NORMALLY ON QUARRY FLOOR AVAILABLE
 @ 43-45 dBA (REVERSE ENGINE UP TO 55 dBA)
 WINDS BLUING LEVELS TO 45 dBA @ TIMES
 PLANT UP TO 45 dBA
 LAEQ 45.5
 LA10 47.8
 LA90 36.5

Sampling location 15
 Sampling Date 10-14-04
 Equipment Used CITRUS JSL/MAN
 Recorded By A. BAW

DAYTIME ~~NIGHTTIME~~

Location 5 Time 16:15 To 16:45
 Wind Speed 2.3 m/s Precipitation None Other _____

Clouds increasing level up to 4500 ft @ 16:45
 Discontinuing traffic @ 16:45

L_AEQ 43.3
 L_A10 44.9
 L_A90 37.3

Location _____ Time _____ To _____
 Wind Speed _____ Precipitation _____ Other _____

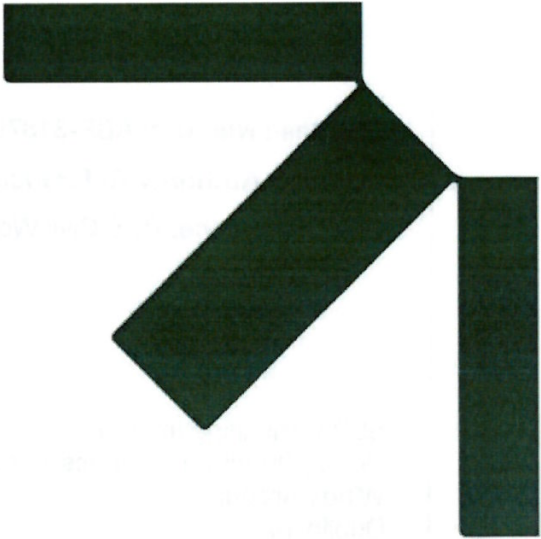
L_AEQ _____
 L_A10 _____
 L_A90 _____

Location _____ Time _____ To _____
 Wind Speed _____ Precipitation _____ Other _____

L_AEQ _____
 L_A10 _____
 L_A90 _____

Location _____ Time _____ To _____
 Wind Speed _____ Precipitation _____ Other _____

L_AEQ _____
 L_A10 _____
 L_A90 _____



Appendix C **Biological Q Survey 2024**

**Further Information Response (ABP-318793-24 P. Ref.
23/169)**

Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan

P&S Civil Works Ltd.

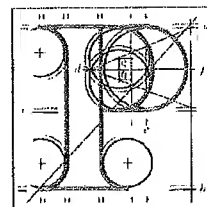
SLR Project No.: 501.064821.00001

11 June 2026

Our Case Number: ABP-318793-24

Planning Authority Reference Number: 23169

Your Reference: P&S Civil Works Ltd.



An
Bord
Pleanála

RECEIVED

04 JUN 2024

SLR Consulting Ireland
Unit 7, Dundrum Business Park
Windy Arbour
Dublin 14
D14 N2Y7

Date: 30 May 2024

Re: Quarry development for rock extraction and associated processing as previously permitted under planning ref. 12/101 (planning ref. 17/383). A time period of 15 years is being sought to allow the previously permitted extraction be completed plus 2 years to complete restoration works (total duration sought 17 years). An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) have been submitted as part of this application.
Mullymagowan Townland, Stradone, Co. Cavan

Dear Sir / Madam,

An Bord Pleanála has received your recent letter in connection with the above matter.

Section 129(4) of the Planning and Development Act, 2000, (as amended), provides that a party shall not be entitled to elaborate in writing upon any submissions or observations made or make any further submissions or observations in writing in relation to the appeal and any such submissions shall not be considered by the Board. Only further information which has been submitted at the Board's own request can be considered.

Accordingly, your submission is herewith returned to you.

Yours faithfully,

Patrick Buckley
Executive Officer
Direct Line: (01) 8737167

BP27

Tel	Tel	(01) 858 8100
Glaio Áitiúil	LoCall	1800 275 175
Facs	Fax	(01) 872 2684
Láithreán Gréasáin	Website	www.pleanala.ie
Ríomhphost	Email	bord@pleanala.ie

64 Sráid Maoilbhríde	64 Marlborough Street
Baile Átha Cliath 1	Dublin 1
D01 V902	D01 V902

30 April 2024

An Bord Pleanála
64 Marlborough Street
Dublin 1
D01 V902

SLR Project No.: 501-904200-064821

AN BORD PLEANÁLA	
LDG-	
ABP-	
02 MAY 2024	
Fee: €	Type:
Time: 9:00	By: Post

RE: ABP-318793-24

Planning Ref: 23/169

First Party Response to Third Party Appeal by An Taisce

P&S Civil Works Limited
Quarry Development at Mullymagowan Townland, Stradone, Co. Cavan

SLR Consulting Ireland, Unit 7, Dundrum Business Park, Windy Arbour, Dublin, D14 N2Y7
acts on behalf of P&S Civil Works Limited, Unit 4, Block B, Corlurgan Business Park, Ballinagh
Road, Cavan.

We refer to our submission to ABP dated 1/2/2024 in response to an appeal in respect of An
Bord Pleanála case reference ABP-318793-24, containing a third party appeal from An Taisce
on the notification grant decision by Cavan County Council on planning application ref. 23/169.

In our response submission of the 1/2/2024, we referenced at:

- **Item 7:** that a **baseline macroinvertebrate survey at three locations to determine the biological Q values of the receiving waters was undertaken** and owing to the short appeal response submission time period of 4 weeks the results of the survey were unavailable at the time of submission on the 1/2/2024.
- **Items 5 & 10:** that **three water quality samples (physio-chemical)**, one each at the discharge point and existing quarry void to add to 2022 surface water quality parameter data already submitted in the EIAR, and one further downstream of the Mullymagowan Stream were scheduled to be carried out in February 2024.

The baseline macroinvertebrate monitoring and additional water quality sampling results are both available for review should the Board wish to request that this information be submitted now, and we would welcome the opportunity to provide this information.

Kind regards,

SLR Environmental Consulting (Ireland) Ltd

Shane McDermott

Shane McDermott

10 April 2024

P&S Civils Works Ltd.
Mullaymagown,
Stradone,
Co. Cavan.

SLR Project No.: 501.064821.0001

Client Reference No.: Stradone Surface Water Quality Report

RE: Surface Water Quality Monitoring - February 2024

Three water samples were tested at the site in February 2024 for baseline water quality.

The water quality samples were taken at three locations:

- SW1 (EIAR sample ID QV1) - ITM coordinates: 652595, 799600;
- SW2 (EIAR sample ID SW1) - ITM coordinates: 652299, 799937; and
- SW3 from the Mullaymagowan Stream - ITM coordinates: 652280, 799998)

The sample locations are shown on **FIGURE 1**.

Grab sampling was undertaken on the 20th February, 2024, by SLR Environmental Scientists. Surface water samples were forwarded to an independent, externally accredited laboratory (ALS Life Sciences) for water quality analysis.

The water quality samples were tested for the following parameters:

- inorganics;
- metals (dissolved, filtered);
- Total Petroleum Hydrocarbons Criteria Working Group (TPH CWG); and
- Volatile Organic Compounds (VOCs).

In **APPENDIX A**, the surface water quality results are presented for February 2024, respectively and are screened against the Environmental Quality Standards (EQS) for surface water, as well as for the 2016 Groundwater Regulations (S.I. No. 366/2016).

The water quality results are generally reflecting a good water quality. All parameters within the EQS limit values. As per Groundwater Regulations, samples from all three sampling points are showing just one exceedance in concentration of sulphate (GW Regs criteria 187.5 mg/l), with the highest concentration noted (470 ml/l) at SW1 (quarry void).

The results for Ammonia are deviating due to a lab issue with testing.

A copy of the Lab Certificates are included in **APPENDIX B** and the sampling field record sheets are included in **APPENDIX C**.

Kind Regards,

SLR Environmental Consulting (Ireland) Ltd



Nikolina Bozinovic, BSc. MSc.
Project Hydrogeologist
nbozinovic@slrconsulting.com

Attachments:

- FIGURE 1:** Site Layout
- APPENDIX A:** Surface Water Quality Screening
- APPENDIX B:** Laboratory Certificates
- APPENDIX C:** Field Record Sheet



**FIGURE 1:
Site Layout**





Notes:

1. Ordnance Survey Ireland Licence No. CYAL5038197
© Ordnance Survey Ireland and Government of Ireland
2. Extract from Aerial map.

Legend:

- APPLICANT'S LAND INTEREST
- MULLYMAGOWAN STREAM
- SURFACE WATER MONITORING POINTS
- QUARRY VOID

Rev	Amendments	Date	By	Chk	Auth
-----	------------	------	----	-----	------



www.slrconsulting.com

P&S CIVILS

STRADONE, CO. CAVAN

SURFACE WATER MONITORING POINTS

Scale	1:2,500	@ A3	501.904200.064821
Drawn	NB	Checked	Authorised
Date	03/24	Date	Date

FIGURE 1

APPENDIX A:
Surface Water Quality Screening



STRADONE SURFACE WATER QUALITY		SI No 366 of 2016 (GW Regs)	SI No. 277 of 2009 and SI No. 77 of 2019	Sample Date: 20/02/2024		
Parameter	Units		EQS Inland Surface Waters (MACs)	Sample ID:		
				SW1	SW2 (Discharge Point)	SW3
				EIAR 2023 Sample ID:		
				QV1	SW1	-
Inorganics						
Ammoniacal Nitrogen as N (low level)	mg/l	0.065-0.175	-	0.012	0.019	0.018
Ammoniacal Nitrogen Low as NH3	mg/l	0.07891-0.21245	-	0.0146	0.0231	0.0219
Ammoniacal Nitrogen Low as NH4	mg/l	-	-	0.0154	0.0244	0.0231
BOD, unfiltered	mg/l	-	High status ≤1.3 (mean) or ≤2.2 (95%ile) Good status ≤1.5 (mean) or ≤2.6 (95%ile)	<1	<1	<1
Chloride	mg/l	24-187.5	-	9.8	9.5	9.6
Conductivity @ 20 deg.C	mS/cm	1.875	-	0.941	0.728	0.658
Cyanide, Free (low level)	µg/l	37.5	-	<2.5	<2.5	<2.5
Cyanide, Total (low level)	µg/l	37.5	-	<5	<5	<5
Fluoride	mg/l	-	-	<0.5	<0.5	<0.5
Nitrate as NO3	mg/l	37.5	-	0.639	1.54	1.69
Nitrite as NO2	mg/l	0.375	-	<0.05	<0.05	<0.05
pH	pH Units	-	Soft water (<100mg/l CaCO3): 4.5- 9.0. Hard water (>100mg/l CaCO3): 6.0-9.0	8.12	8.16	8.12
Phosphate (Ortho as P)	mg/l	-	-	<0.02	<0.02	<0.02
Sulphate	mg/l	187.5	-	470	304	277
Sulphide	mg/l	-	-	<0.01	<0.01	<0.01
Suspended solids, Total	mg/l	-	-	<2	2.25	<2
Total Oxidised Nitrogen as N	mg/l	-	-	0.144	0.348	0.381
Filtered (Dissolved) Metals						
Aluminium (diss.filt)	µg/l	150	-	<10	15.3	18.2
Antimony (diss.filt)	µg/l	-	-	<1	<1	<1
Arsenic (diss.filt)	µg/l	7.5	-	<0.5	<0.5	<0.5
Barium (diss.filt)	µg/l	-	-	20.1	30.3	29.3
Boron (diss.filt)	µg/l	-	-	14.1	<10	<10
Cadmium (diss.filt)	µg/l	3.75	0.45 - 1.5	<0.08	<0.08	<0.08
Calcium (diss.filt)	mg/l	-	-	185	132	120
Chromium (diss.filt)	µg/l	37.5	-	<1	<1	<1
Copper (diss.filt)	µg/l	-	-	1.15	1.74	1.76
Iron (Dis.Filt)	mg/l	-	-	<0.019	0.0463	0.0513
Lead (diss.filt)	µg/l	7.5	-	<0.2	<0.2	<0.2
Manganese (diss.filt)	µg/l	-	-	<3	76.4	62.4
Mercury (diss.filt)	µg/l	0.75	0.07	<0.01	<0.01	<0.01
Nickel (diss.filt)	µg/l	15	-	3.62	3.36	2.85
Phosphorus (diss.filt)	µg/l	-	-	<10	<10	<10
Potassium (Dis.Filt)	mg/l	-	-	3.69	3.29	3.13
Selenium (diss.filt)	µg/l	-	-	<1	<1	<1
Sodium (Dis.Filt)	mg/l	-	-	6.9	6.32	6.31
Vanadium (diss.filt)	µg/l	-	-	<1	<1	<1
Zinc (diss.filt)	µg/l	75	-	3.45	2.98	3.66
TPH Criteria Working Group (TPH CWG)						
Aliphatics >C10-C12	µg/l	-	-	<10	<10	<10
Aliphatics >C12-C16 (aq)	µg/l	-	-	<10	<10	<10
Aliphatics >C16-C21 (aq)	µg/l	-	-	<10	<10	<10
Aliphatics >C21-C35 (aq)	µg/l	-	-	<10	<10	<10
Aliphatics >C5-C8	µg/l	-	-	<10	<10	<10
Aliphatics >C6-C8	µg/l	-	-	<10	<10	<10
Aliphatics >C8-C10	µg/l	-	-	<10	<10	<10
Aromatics >EC10-EC12	µg/l	-	-	<10	<10	<10
Aromatics >EC12-EC16 (aq)	µg/l	-	-	<10	<10	<10
Aromatics >EC16-EC21 (aq)	µg/l	-	-	<10	<10	<10
Aromatics >EC21-EC35 (aq)	µg/l	-	-	<10	<10	<10
Aromatics >EC5-EC7	µg/l	-	-	<10	<10	<10
Aromatics >EC7-EC8	µg/l	-	-	<10	<10	<10
Aromatics >EC8-EC10	µg/l	-	-	<10	<10	<10
GRO >C5-C12	µg/l	-	-	<50	<50	<50
GRO Surrogate % recovery**	%	-	-	98	99	99
Total Aliphatics & Aromatics >C5-35 (aq)	µg/l	-	-	<10	<10	<10
Total Aliphatics >C12-C35 (aq)	µg/l	7.5	-	<10	<10	<10
Total Aromatics >EC12-EC35 (aq)	µg/l	-	-	<10	<10	<10
Volatile Organic Compounds (VOCs)						
Benzene	µg/l	0.75	-	<1	<1	<1
Ethylbenzene	µg/l	-	-	<1	<1	<1
m,p-Xylene	µg/l	-	-	<1	<1	<1
Methyl tertiary butyl ether (MTBE)	µg/l	10	-	<1	<1	<1
o-Xylene	µg/l	-	-	<1	<1	<1
Sum of BTEX	µg/l	-	-	<5	<5	<5
Sum of detected Xylenes	µg/l	-	-	<2	<2	<2
Toluene	µg/l	525	-	<1	<1	<1

APPENDIX B:
Laboratory Certificates





Unit 7-8 Hawarden Business Park
Manor Road (off Manor Lane)
Hawarden
Deeside
CH5 3US

Tel: (01244) 528777

email: hawardencustomerservices@alsglobal.com

Website: www.alsenvironmental.co.uk

SLR Consulting Ireland
CSA House
Unit 7
Dundrum Business Park
Windy Harbour
Dublin
Dublin14

Attention: Mairead Brown

CERTIFICATE OF ANALYSIS

Date of report Generation:	29 February 2024
Customer:	SLR Consulting Ireland
Sample Delivery Group (SDG):	240222-70
Your Reference:	501.64831.00001
Location:	Stradone
Report No:	721686
Order Number:	GSAL/365

We received 3 samples on Thursday February 22, 2024 and 3 of these samples were scheduled for analysis which was completed on Thursday February 29, 2024. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden.

All sample data is provided by the customer. The reported results relate to the sample supplied, and on the basis that this data is correct.

Incorrect sampling dates and/or sample information will affect the validity of results.

The customer is not permitted to reproduce this report except in full without the approval of the laboratory.

Approved By:

Sonia McWhan

Operations Manager





CERTIFICATE OF ANALYSIS

Validated

SDG: 240222-70
Client Ref.: 501.64831.00001

Report Number: 721686
Location: Stradone

Superseded Report:

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
29399831	SW1		0.00 - 0.00	20/02/2024
29399842	SW2		0.00 - 0.00	20/02/2024
29399856	SW3		0.00 - 0.00	20/02/2024

Only received samples which have had analysis scheduled will be shown on the following pages.



CERTIFICATE OF ANALYSIS

Validated

SDG: 240222-70
Client Ref.: 501.64831.00001

Report Number: 721686
Location: Stradone

Superseded Report:

Results Legend X Test N No Determination Possible Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Lab Sample No(s)		Customer Sample Reference		AGS Reference		Depth (m)		Container										Sample Type													
Ammonium Low	All	NDPs: 0 Tests: 3																														
Anions by Kone (w)	All	NDPs: 0 Tests: 3																														
BOD True Total	All	NDPs: 0 Tests: 3																														
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 3																														
EPH and CWG by FID	All	NDPs: 0 Tests: 3																														
Fluoride	All	NDPs: 0 Tests: 3																														
GRO by GC-FID (W)	All	NDPs: 0 Tests: 3																														
Low Level Cyanide (W)	All	NDPs: 0 Tests: 3																														
Mercury Dissolved	All	NDPs: 0 Tests: 3																														
Nitrite by Kone (w)	All	NDPs: 0 Tests: 3																														
pH Value	All	NDPs: 0 Tests: 3																														
Phosphate by Kone (w)	All	NDPs: 0 Tests: 3																														
Sulphide	All	NDPs: 0 Tests: 3																														
Suspended Solids	All	NDPs: 0 Tests: 3																														
TPH CWG (W)	All	NDPs: 0 Tests: 3																														

29399856	SW3		0.00 - 0.00	ZnAc (ALE246)	SW	
				Via (ALE297)	SW	X



CERTIFICATE OF ANALYSIS

SDG: 240222-70
Client Ref.: 501.64831.00001

Report Number: 721686
Location: Stradone

Superseded Report:

Results Legend			Customer Sample Ref.	SW1	SW2	SW3			
# ISO17025 accredited. M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted - refer to subcontractor report for accreditation status. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery. (F) Trigger breach confirmed 1-4*5@ Sample deviation (see appendix)			Depth (m) Sample Type Date Sampled Sample Time Date Received SDG Ref Lab Sample No.(s) AGS Reference	0.00 - 0.00 Surface Water (SW) 20/02/2024	0.00 - 0.00 Surface Water (SW) 20/02/2024	0.00 - 0.00 Surface Water (SW) 20/02/2024			
Component	LOD/Units	Method							
Suspended solids, Total	<2 mg/l	TM022		<2	2.25	<2			
				#	#	#			
BOD, unfiltered	<1 mg/l	TM045		<1	<1	<1			
				#	#	#			
Ammoniacal Nitrogen as N (low level)	<0.01 mg/l	TM099		0.012	0.019	0.018			
				2 #	2 #	2 #			
Ammoniacal Nitrogen Low as NH3	<0.01 mg/l	TM099		0.0146	0.0231	0.0219			
				2 #	2 #	2 #			
Ammoniacal Nitrogen Low as NH4	<0.01 mg/l	TM099		0.0154	0.0244	0.0231			
				2 #	2 #	2 #			
Sulphide	<0.01 mg/l	TM101		<0.01	<0.01	<0.01			
Fluoride	<0.5 mg/l	TM104		<0.5	<0.5	<0.5			
Aluminium (diss.filt)	<10 µg/l	TM152		<10	15.3	18.2			
				#	#	#			
Antimony (diss.filt)	<1 µg/l	TM152		<1	<1	<1			
				#	#	#			
Arsenic (diss.filt)	<0.5 µg/l	TM152		<0.5	<0.5	<0.5			
				#	#	#			
Barium (diss.filt)	<0.2 µg/l	TM152		20.1	30.3	29.3			
				#	#	#			
Boron (diss.filt)	<10 µg/l	TM152		14.1	<10	<10			
				#	#	#			
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08	<0.08	<0.08			
				#	#	#			
Chromium (diss.filt)	<1 µg/l	TM152		<1	<1	<1			
				#	#	#			
Copper (diss.filt)	<0.3 µg/l	TM152		1.15	1.74	1.76			
				#	#	#			
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2	<0.2	<0.2			
				#	#	#			
Manganese (diss.filt)	<3 µg/l	TM152		<3	76.4	62.4			
				#	#	#			
Nickel (diss.filt)	<0.4 µg/l	TM152		3.62	3.36	2.85			
				#	#	#			
Phosphorus (diss.filt)	<10 µg/l	TM152		<10	<10	<10			
				#	#	#			
Selenium (diss.filt)	<1 µg/l	TM152		<1	<1	<1			
				#	#	#			
Vanadium (diss.filt)	<1 µg/l	TM152		<1	<1	<1			
				#	#	#			
Zinc (diss.filt)	<1 µg/l	TM152		3.45	2.98	3.66			
				#	#	#			
Sodium (Dis.Filt)	<0.076 mg/l	TM152		6.9	6.32	6.31			
				#	#	#			
Potassium (Dis.Filt)	<0.2 mg/l	TM152		3.69	3.29	3.13			
				#	#	#			
Calcium (Dis.Filt)	<0.2 mg/l	TM152		185	132	120			
				#	#	#			
Iron (Dis.Filt)	<0.019 mg/l	TM152		<0.019	0.0463	0.0513			
				#	#	#			
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01	<0.01	<0.01			
Nitrite as NO2	<0.05 mg/l	TM184		<0.05	<0.05	<0.05			
				#	#	#			
Sulphate	<2 mg/l	TM184		470	304	277			
				#	#	#			
Chloride	<2 mg/l	TM184		9.8	9.5	9.6			
				#	#	#			
Phosphate (Ortho as P)	<0.02 mg/l	TM184		<0.02	<0.02	<0.02			
				#	#	#			
Nitrate as NO3	<0.3 mg/l	TM184		0.639	1.54	1.69			
				#	#	#			
Total Oxidised Nitrogen as N	<0.1 mg/l	TM184		0.144	0.348	0.381			
				#	#	#			

CERTIFICATE OF ANALYSIS

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SDG: 240222-70
Client Ref.: 501.64831.00001

Report Number: 721686
Location: Stradone

Superseded Report:

TPH CWG (W)

[illegible]



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Validated

SDG: 240222-70
Client Ref.: 501.64831.00001

Report Number: 721686
Location: Stradone

Superseded Report:

Table of Results - Appendix

Method No	Description
TM439	Determination of Extractable Petroleum Hydrocarbons (EPH) CWG banding by GC-FID on liquids
TM152	Analysis of Aqueous Samples by ICP-MS
TM208	Determination of Volatile Organic Compounds by Headspace / GC-MS in Waters
TM256	Determination of pH, EC, TDS and Alkalinity in Aqueous samples
TM279	Determination of Low Level Easily Liberatable (Free) Cyanides and Total Cyanides in Waters using the Skalar SANS+ System Segmented Flow Analyser
TM022	Determination of total suspended solids in waters
TM045	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	Determination of Ammonium in Water Samples using the Kone Analyser
TM101	Determination of Sulphide in soil and water samples using the Kone Analyser
TM104	Determination of Fluoride using the Kone Analyser
TM183	Determination of Trace Level Mercury in Waters and Leachates by PSA Cold Vapour Atomic Fluorescence Spectrometry
TM184	The Determination of Anions in Aqueous Matrices using the Kone Spectrophotometric Analysers
TM245	Determination of GRO by Headspace in waters

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Laboratories (UK) Limited Hawarden (Method codes TM).



CERTIFICATE OF ANALYSIS

Validated

SDG: 240222-70
Client Ref.: 501.64831.00001

Report Number: 721686
Location: Stradone

Superseded Report:

Test Completion Dates

Lab Sample No(s)	29399831	29399842	29399856
Customer Sample Ref.	SW1	SW2	SW3
AGS Ref.			
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Surface Water	Surface Water	Surface Water
Ammonium Low	26-Feb-2024	26-Feb-2024	26-Feb-2024
Anions by Kone (w)	23-Feb-2024	23-Feb-2024	23-Feb-2024
BOD True Total	27-Feb-2024	27-Feb-2024	27-Feb-2024
Dissolved Metals by ICP-MS	28-Feb-2024	28-Feb-2024	28-Feb-2024
EPH and CWG by FID	26-Feb-2024	27-Feb-2024	26-Feb-2024
Fluoride	23-Feb-2024	23-Feb-2024	23-Feb-2024
GRO by GC-FID (W)	23-Feb-2024	23-Feb-2024	23-Feb-2024
Low Level Cyanide (W)	27-Feb-2024	27-Feb-2024	27-Feb-2024
Mercury Dissolved	28-Feb-2024	28-Feb-2024	28-Feb-2024
Nitrite by Kone (w)	23-Feb-2024	23-Feb-2024	23-Feb-2024
pH Value	28-Feb-2024	28-Feb-2024	28-Feb-2024
Phosphate by Kone (w)	23-Feb-2024	23-Feb-2024	23-Feb-2024
Sulphide	27-Feb-2024	27-Feb-2024	27-Feb-2024
Suspended Solids	29-Feb-2024	29-Feb-2024	28-Feb-2024
TPH CWG (W)	26-Feb-2024	27-Feb-2024	26-Feb-2024
VOC MS (W)	26-Feb-2024	26-Feb-2024	26-Feb-2024



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Client Ref: 501.64831.00001

Report Number: 721686
Location: Stradone

Superseded Report:

Appendix

1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH₄ by the BRE method, VOC TICs and SVOC TICs.

2. If sufficient sample is received a sub sample will be retained free of charge for 15 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of 15 days after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.

3. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

4. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

5. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

6. NDP - No determination possible due to insufficient/unsuitable sample.

7. Results relate only to the items tested.

8. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content.

9. **Surrogate recoveries** - Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.

10. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

11. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

12. For dried and crushed preparations of soils volatile loss may occur e.g volatile mercury

13. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

14. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

15. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

16. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

17 Data retention. All records, communications and reports pertaining to the analysis are archived for seven years from the date of issue of the final report.

General

18. **Tentatively Identified Compounds (TICs)** are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

19. Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Matrix interference
♦	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to late arrival of instructions or samples
§	Sampled on date not provided

20. Asbestos

When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2021), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials and soils are obtained from supplied bulk materials and soils which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2021).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining.

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Respirable Fibres

Respirable fibres are defined as fibres of <3 µm diameter, longer than 5 µm and with aspect ratios of at least 3:1 that can be inhaled into the lower regions of the lung and are generally acknowledged to be most important predictor of hazard and risk for cancers of the lung.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Surface Water Sampling Field Record Sheet

Date:	20 February 2024	Time:	10:00 – 11:30	Location:	Stradone, Co. Cavan
Client:	P&S Civils (904200)		SLR Project No.:	501.064821.00001	
Staff:	Site Staff				
Weather:	10 °C, overcast with drizzling rain				
Equipment:	Aqua Troll, extendable pole scoop for sampling, containers for samples provided by laboratory, disposable gloves, cool box, syringes and filters, field diary, site map				

Sample ID	SW1	SW2	SW3
EIAR 2023 ID	QV1 (November 2022)	SW1 (November 2022)	
Temperature (°C)	7.33	11.19	9.39
Dissolved oxygen (%)	99.91	97.58	97.03
Dissolved oxygen (mg/l)	11.67	11.14	10.97
Specific conductivity (µS/cm)	1001.41	606.59	572.33
Conductivity (µS/cm)	672.9	414.16	399.16
pH	7.72	7.30	7.56
pHmv	-62.92	-40.54	-54.57
Turbidity (NTU)	0.29	29.4	2.71
Visual inspection:			
Odour	No	No	No
Sheen	No	No	No
Silt	Low	Low	Low
Colour	Transparent	Transparent	Transparent
Free product	No	No	No

Field observations:

Time	
10:10	Met with the Operations Manager for the access
10:30	Very muddy terrain between SW1 and SW2
10:50	Narrow and shallow stream bed at SW2
11:15	Stream intersecting pastureland

Mullymagowan Quarry

Biological Water Quality Report,

Stradone, Co. Cavan



Prepared by Triturus Environmental Ltd.

for Cleantech Civils Ltd.

February 2024

Please cite as:

Triturus Environmental Ltd. (2024). Mullymagowan Quarry Biological Water Quality Report, Stradone, Co. Cavan. Prepared for Cleantech Civils Ltd.

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1. Introduction

1.1 Background

Triturus Environmental Ltd. were contracted by Cleantech Civils Ltd. to undertake a biological water quality assessment of the 1st order Corraneary (Mullymagowan) Stream (EPA code 36C69) adjoining Mullymagown Quarry, Stradone, Co. Cavan (**Figure 1.1**). The water quality sampling was undertaken as part of a response to a third party appeal (ABP Ref: ABP-318793-24) lodged to An Bord Pleanála by An Taisce, while also providing a baseline for future comparative biological water quality monitoring.

The European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No 272 of 2009) specify Ecological Quality Ratio (EQR) targets for the 'high' and 'good' boundaries at 0.85 and 0.75 respectively for rivers (all types). As required under the Water Framework Directive (2000/60/EC) all rivers should achieve "high" or "good" and should be maintained at their current level if they are meeting these targets.

1.2 Project Background

The proposed development relates to a previously approved quarry extension development for rock extraction over an area of c. 4 hectares which was never commenced. The development proposed seeks to utilise existing ancillary buildings and facilities including waste water treatment system, processing plant and all other associated site works and ancillary activities as currently permitted by P. Ref. 07/827. Owing to the poor economic conditions and therefore lack of demand for product, the existing quarry and processing area has not been operational since 2013/2014.

Planning permission (P. Ref. 23/169) was granted to the applicant P&S Civil Works Limited by Cavan County Council (CCC) on the 29th November 2023. A third-party appeal (ABP Ref: ABP-318793-24) has been lodged to An Bord Pleanála by An Taisce.

Grounds for the appeal included the following:

- Failure to adequately address issues relating to Hydrological and Hydrogeological concerns and the associated protection measures suggest the Applicant cannot eliminate all reasonable scientific doubt as to the significance of impacts upon local aquatic regimes; and
- A review of historic surface water quality bodies and micro/macro aquatic faunae downstream and upstream of the extant quarry void is required to enable proper contextual assessment of quarry activities on local water regimes during previous quarrying activities and extended period of inactivity.

SLR Environmental Consulting (Ireland) Ltd, acting as agent for the applicant submitted a first party response to the appeal on 1 February 2024. The response highlighted that the EIAR and NIS submitted were sufficiently detailed for the planning application process and were accepted by Cavan County Council (CCC) and provided a sound basis for the grant of planning permission for

the proposed development by the Competent Authority. The response highlighted the sections of the planning documentation where the issues raised by the appellant has been addressed in full. In granting planning permission in 2023 CCC had accepted that further detailed hydrological work would be required through the discharge license application process which would be carried out as a planning condition prior to commencement of the quarry extension.

To address the submission from An Taisce, SLR reviewed water quality at the receiving stream waterbody (Stradone-010) and it was categorised as 'unassigned' under the Water Framework Directive (WFD) for the monitoring period 2007-2009, the earliest date for which WFD monitoring data is available. For all later periods for which WFD monitoring data is available, the quality has been assessed as 'Good' based on monitoring undertaken and the waterbody is classified as 'Not at Risk' of not meeting its objectives under the WFD. The quarry was in operation up until c. 2013/2014 when the WFD status of the waterbody was recorded as being of Good Status for the period 2010-2015. This indicates that when operational the quarry and discharge did not result in the receiving waters not achieving the WFD objectives.

As a further undertaking to address the concerns of the appellant, the applicant commissioned baseline macroinvertebrate monitoring at three locations to determine the baseline Q values of the receiving waterbodies. The findings from the baseline survey are set out in this report.

In addition, three water quality samples (Physio-chemical), one each at the discharge point and existing quarry void to add to 2022 surface water quality parameter data already submitted in the EIAR, and one further downstream of the Mullymagowan Stream were carried out in February 2024.

Owing to the short appeal response submission time period of 4 weeks the results of the surveys were not yet available at the time of the first party response submitted on the 1st February 2024. The report contained herein represents a report on the results of the macroinvertebrate survey. It is available should the Board be mindful to request this additional information in due course and it will be useful in enabling future monitoring of the hydrological and ecological receiving environment from the quarry.

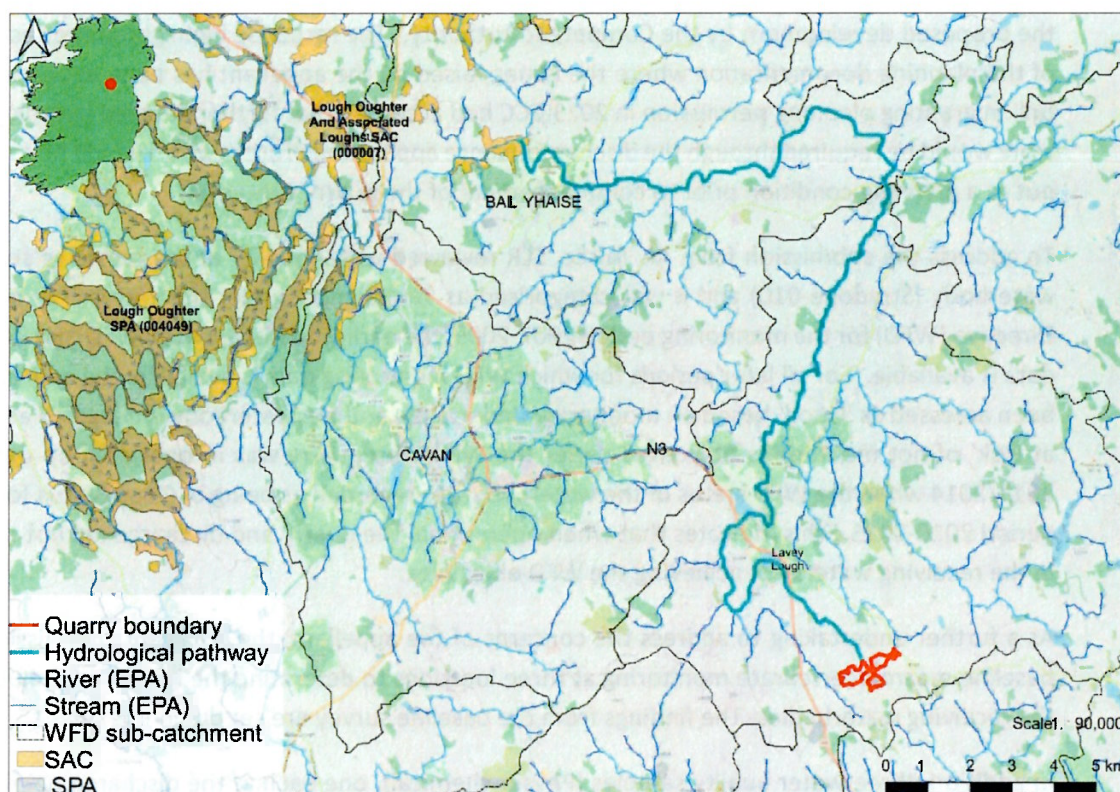


Figure 1.1 Location of the Mullmagowan Quarry, Stradone, Co. Cavan

1.3 EPA Biological Water Quality

No EPA water quality monitoring stations were present on the Corraneary Stream (36C69). The nearest downstream EPA water quality monitoring station (RS36S020075) was situated on the Stradone River (36S02) downstream of St. Dymphna's Well on the L6504 bridge crossing circa. 6.8km downstream of the proposed quarry outfall. The latest biological water quality was recorded as of 'good status' (Q4) at station RS36S020075 in 2022. The Corraneary Stream flows through Corfad Lough and Lavey Lough before reaching this EPA monitoring station. Further downstream the EPA monitored a station (RS36S020200) north of Stradone Village where water quality was also recorded as of 'good status' (Q4) in 2022. Both EPA stations were therefore meeting the good status targets of the Water Framework Directive (2000/60/EC) as prescribed by the European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019.

2. Methodology

2.1 Study Area

Water from the proposed quarry void will be discharged to the Corraneary Stream (36C69) a 1st order stream emanating from drainage channels culverted under the quarry and discharging to a channel along the northern boundary of the quarry. The Corraneary Stream then flows northwest through Corfad and Lavey Loughs before meandering to the southwest where it becomes a second order river known as the Stradone River (36S02). The Stradone River then flows northwest through Lisnahanagh Lough and Stradone Village before joining the Annalee (Ballyhaise) River (36A02) at Tulavally. The Annalee River then flows westwards and enters the Lough Oughter Lake complex west of Butlers Bridge (northwest of Cavan town) (**Figure 1.1**). This lake system is c.30km km downstream of the site and forms part of the Lough Oughter and Associated Loughs SAC (000007) a site designated for Natural Eutrophic Lakes [3150], Otter (*Lutra lutra*) [1355] and Bog Woodland [91D0].

The existing quarry site is bounded to the south and east by open improved grassland (GA1) with networks of hedgerows (WL1) and treelines (WL2). The west and north are bounded by more complex mosaics of habitat including open improved grassland (GA1), mixed broadleaved woodland (WD1), hedgerows (WL1), treelines (WL2), scrub (WS1) and localised pockets of wet grassland (GS4). Based on the existing land use practices in the catchment, agricultural practices and quarrying are considered potential negative influences on water quality.

The assessment undertaken here focuses on the biological water quality of the Corraneary Stream as it is the only watercourse which will receive discharges from the Mullymagowan Quarry operation.

2.2 Biological Q sampling surveys

Biological Q sampling was undertaken at $n=3$ riverine sites on the Corraneary Stream on the 1st February 2024 during base flow water conditions (**Table 2.1 & Figure 2.1**). Site 1 was situated upstream of the proposed discharge (upstream control), while sites 2 and 3 acted as downstream controls.

Macro-invertebrate samples were converted to Q-ratings as per Toner et al. (2005). All stream samples were taken with a standard kick sampling hand net (250mm width with 500µm mesh size) from areas of riffle/glide utilising a three-minute sample effort. This included the washing of large cobble and or small boulder at each survey site, where present. All samples were elutriated and fixed in 70% ethanol for subsequent laboratory identification. Any rare invertebrate species were identified from the NPWS Red List publications for beetles (Foster et al., 2009), stoneflies (Feeley et al., 2020a), mayflies (Kelly-Quinn & Regan, 2012) and other relevant taxa (i.e. O'Connor, 2020; Byrne et al., 2009; Nelson et al., 2011).

An EQR was also calculated for each sample. This allows for the conversion of a Q rating class to a numerical value to correspond with targets as specified within the European Communities Environmental Objectives (Surface Water) Regulations (S.I. No. 272 of 2009) as amended by the

S.I. No. 77/2019. An EQR Ratio is expressed by a numerical value between 0 and 1 in the case of Q sampling by dividing the recorded Q rating by the maximum reference value (i.e. Q5 or 1.0 when converted to a numerical value). In the case of the Surface Water Regulations 2019, minimum targets for rivers are specified as 0.75 for Good Status (equivalent Q4) and 0.85 for High status (equivalent Q 4-5) (**Table 2.2**).

As such, the severity of anthropogenic pollution can be determined based on deviation from target reference conditions (Feeley et al. 2020b). In this respect, 'High status' is defined as the biological, chemical and morphological conditions associated with no or very low human pressure, while at the other extreme 'Bad Status' would be representative of severe anthropogenic pressures on a river.

Table 2.1 Q sampling survey sites on the Corraneary Stream adjoining Mullymagowan Quarry, Stradone, Co. Cavan (1st February 2024)

Site no.	Watercourse Name	EPA Name & Code	Location	ITM (x)	ITM (y)
1	Corraneary Stream	36C69	Situated on the Corraneary Stream near source northwest of aggregate washing plant	652511	799788
2	Corraneary Stream	36C69	Immediately upstream of small drainage ditch confluence at intersection of stream with northern boundary of quarry c. 300m d/s of site S1	652310	799953
3	Corraneary Stream	36C69	Situated c. 50m downstream of site S2 in agricultural fields	652272	800007

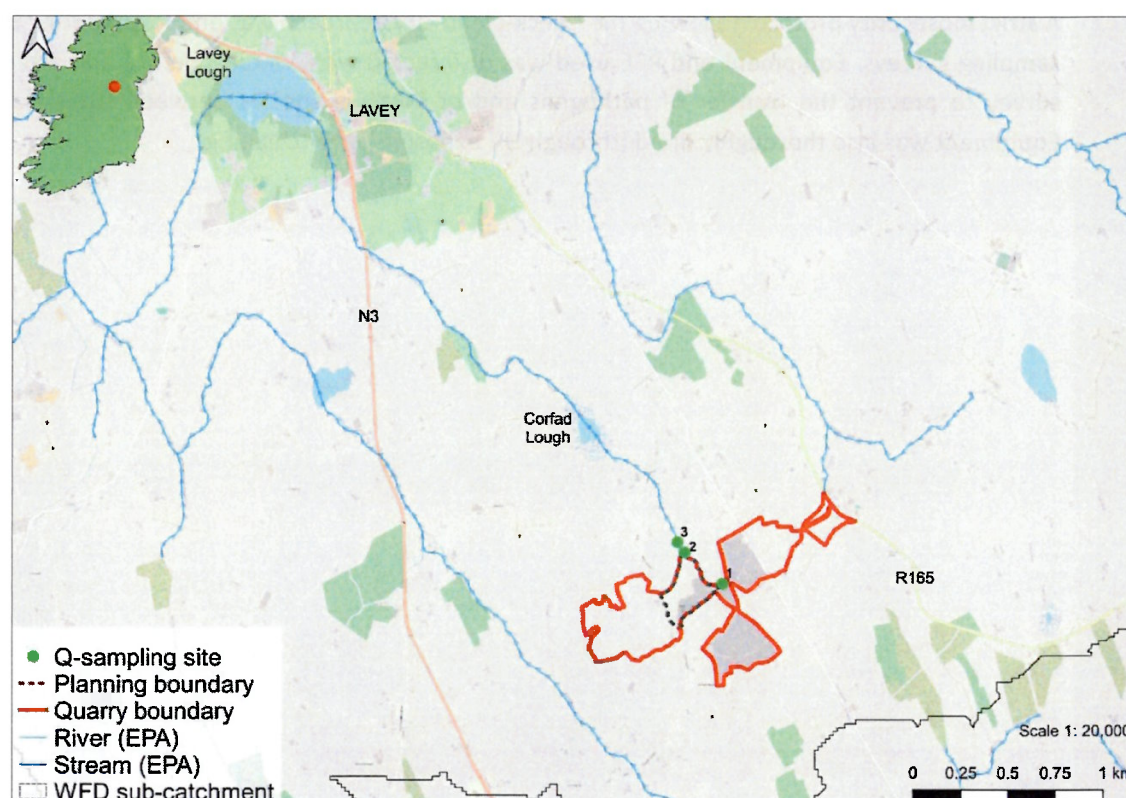


Figure 2.1 Location of the Mullymagowan Quarry, Stradone, Co. Cavan

Table 2.2 Reference Categories for EPA Q-Ratings (Q1 to Q5)

Q Value	EQR	WFD Status	Pollution Status	Condition
Q5 or Q4-5	≥0.9	HighStatus	Unpolluted	Satisfactory
Q4	0.8	Good Status	Unpolluted	Satisfactory
Q3-4	0.7	Moderate Status	Slightly polluted	Unsatisfactory
Q2-3 or Q3	0.5-0.6	Poor	Moderately polluted	Unsatisfactory
Q1, Q1-2 or Q2	0.2-0.4	Bad	Seriously polluted	Unsatisfactory

2.3 Biosecurity

A strict biosecurity protocol following the Check-Clean-Dry approach was employed during the Q sampling surveys. Equipment and PPE used was disinfected with Virkon® before and after the survey to prevent the transfer of pathogens and/or invasive species between survey areas. Equipment was also thoroughly dried (through UV exposure) after cleaning.

3. Results

3.1 Site Physical Descriptions

Site 1 Corraneary Stream (u/s quarry discharge)

Site 1 was an upstream control site on the Corraneary Stream c. 300m upstream of the proposed quarry outfall. The stream was a U-shaped upland eroding stream (FW1), 1-1.5m wide with water depth between 0.1-0.3m. The stream had a sinuous profile but had however been historically deepened with 1.5-2.5m high banks (Plate 3.1). The historical hydromorphological impacts (i.e. deepening) resulted in limited flow diversity and the predominance of slow flowing deeper glide. Consequentially, the stream had very localised riffle habitat. The bed supported localised angular cobble and gravels with moderate to heavy siltation (silt plumes underfoot with evident settlement on instream substrata due to the lower energy at the survey). The bed was also moderately compacted and covered with an Iron oxidising bacterial film (Plate 3.2). The stream was too shaded to support macrophytes and none were recorded. The splash zones and wet banks of the riparian areas supported occasional fox-tail feathermoss (*Thamnobryum alopercum*). The riparian areas supported dense growth of willow (*Salix cinerea* sp. *oleifolia*), gorse (*Ulex europaeus*), hawthorn (*Crataegus monoygna*) and localised bramble (*Rubus fruticosus*). The bordering land uses were of semi-improved grassland (GA1) and the exposed bare ground of the quarry (ED2).



Plate 3.1 Survey site 1 on the upper reaches of the Corraneary Stream



Plate 3.2 Survey site 1 on the upper reaches of the Corraneary Stream showing deposition of iron-oxidising bacterial film on the bed



Site 2 Corraneary Stream (d/s quarry discharge)

Site 2 was situated on the Corraneary Stream at the proposed discharge location. The stream at site 2 was a 1m wide upland eroding stream (FW2) with water depth 0.1-0.2m and 0.5-1m high banks (**Plate 3.3**). The survey areas was situated immediately upstream of a small drainage ditch confluence emanating from improved grassland along the east bank. The stream had a sinuous channel form with a flow profile of mixed riffle and shallow glide with very localised shallow pool. Given its high energy the stream supported no macrophytes. As with upstream areas, the splash zones of the riparian areas supported occasional fox-tail feathermoss. The bed supported mixed small boulder, cobble and angular coarse gravels with no filamentous algae cover. The bed was moderately compacted and silted with silt plumes underfoot. The riparian areas supported mature ash (*Fraxinus excelsior*), hazel (*Corylus avellana*), hawthorn, gorse, common ivy (*Hedera helix*) and bramble. The damp lower river banks supported abundant opposite-leaved golden saxifrage (*Chrysosplenium oppositifolium*). The bordering land use was of semi-improved grassland (GA1).



Plate 3.3 Survey site 2 on the Corraneary Stream adjoining the proposed discharge location

Site 3 Corraneary Stream (d/s quarry discharge)

Site 3 was situated c. 50m downstream of the proposed quarry discharge on the Corraneary Stream. The stream was representative of a 1m wide upland eroding stream (FW2) of lower energy than upstream. The stream had water depth 0.1-0.2m with 1-1.5m high banks. The stream had been historically straightened along the adjoining field boundaries. The stream however, had swift flowing water dominated by riffle with glide. As with upstream it supported no macrophytes due to the high energy. The stream supported drab brook-moss (*Hygrohypnum luridum*) on large woody debris instream and locally shining hookeria (*Hookeria lucens*). The bed supported cobble with mixed angular coarse, medium and fine gravels with no filamentous algae cover. The bed was moderately silted with silt plumes underfoot with moderate compaction. The riparian areas supported mature beech (*Fagus sylvatica*), hawthorn, blackthorn (*Prunus spinosa*), grey willow and bramble. The bordering land use was of semi-improved grassland (GA1).



Plate 3.4 Survey site 3 on the Corraneary Stream downstream of the proposed quarry discharge location

3.2 Biological Water Quality (Q Samples)

Q-samples were collected and analysed from the $n=3$ riverine survey sites on the Coraneary Stream from the samples collected in February 2024 (**Figure 2.1**). The species compositions were converted into Environmental Protection Agency (EPA) Q ratings by grouping species assemblages into water quality classes based on their known pollution sensitivities. Following the methodology of Toner et al. (2005), the Environmental Protection Agency (EPA) group invertebrates into classes whereby pollution intolerant species are denoted class A, and species with greater pollution tolerance fall into successive classes (B through E, respectively). As such, the presence or absence of these groups and their relative abundance facilitates an assessment of biological river health.

Good status (Q4) unpolluted water quality is achieved according to the EPA if at least one Group A taxon is present in, at least, fair numbers (5-10% total sample composition). Group B taxa may be common or absent and *Baetis rhodani* (large dark olive mayfly) is often dominant (Toner et al. 2005). Other Group C taxa are never excessive and group D / E taxa are present in small numbers or absent (Toner et al., 2005). Our results are discussed in this context to interpret potential changes in the macroinvertebrate community composition. Furthermore, the Q sample results have been converted into an Ecological Quality Ratio to reference with the standards specified in the European Communities Environmental Objectives (Surface Water) (Amendment) Regulations S.I. No. 77/2019.

A cumulative species richness of $n=17$ was recorded between the three riverine kick sample sites (Table 3.1). Site 3 downstream of the quarry had the highest species richness ($n=11$ species), while sites 1 and 2 had ($n=10$ and $n=9$) species respectively. Ephemeroptera, Plecoptera, Trichoptera ratios were typically good across the sites representing between 55.9% to 80.9% of the sample compositions. By comparison EPT species richness was $n=5$ at both sites 1 and 2 with site 3 having $n=7$ species.

Site 1 was situated on the upper Corraneary Stream in an area with poor hydromorphology (Figure 3.1 & Table 3.1). Site 1 obtained the lowest biological water quality rating of **Q3 (poor status)** due to the presence of poor water quality indicators. Despite having some EPA group B (clean water indicator species) present (i.e. *Leuctra fusca*), the site was dominated by EPA group C (moderate water quality indicators). It also supported poor water quality indicators (i.e. group D & E species, namely *Asellus aquaticus* & *Chironomus* sp.). This species assemblage accounted for the poor status (**Q3**) biological water quality recorded,

Site 2 and site 3 (0.3km & 0.35km downstream of site 1 respectively) both had **Q4 (good status)** water quality (Figure 3.1 & Table 3.1). This was due to the presence of the EPA group A species *Rhithrogena semicolorata* (i.e. very clean water indicator species) in fair numbers. Both survey areas also supported the clean water indicator mayfly species *Alainites muticus* and the stonefly species (*Leuctra fusca*), both EPA group B species. Pollution tolerant EPA group D and E species (i.e. poor water quality indicator species) were absent at both survey sites.

In summary site 1 on the Corraneary Stream obtained **Q3 (poor status; EQR 0.6)** water quality and thus failed to meet the good status (EQR of ≥ 0.75) target of the Water Framework Directive (2000/60/EEC).

By contrast sites 2 and 3 on the Corraneary Stream obtained a Q-rating of **Q4 (good status)** or an equivalent EQR of **0.8** that meets the target EQR of ≥ 0.75 (i.e. equivalent Q4 'good status' water quality) target of the Water Framework Directive (2000/60/EEC) as prescribed by the European Communities Environmental Objectives (Surface Water) (Amendment) Regulations S.I. No. 77/2019.

Table 3.1 Invertebrate species composition recorded at sites 1, 2 and 3 on the Corraneary Stream at Mullymagowan Quarry

Taxon	Family	Binomial name	Site 1	Site 2	Site 3	EPA Group	Water Quality Group Category
Ephemeroptera	Heptageniidae	<i>Rhithrogena semicolorata</i>		5	8	A	Very Clean
Ephemeroptera	Baetidae	<i>Alainites muticus</i>		4	5	B	Clean
Plecoptera	Leuctridae	<i>Leuctra fusca</i>	24	20	1	B	Clean
Trichoptera	Limnephilidae	<i>Halesus radiatus</i>			1	B	Clean
Trichoptera	Limnephilidae	<i>Potamophylax cingulatus</i>		1	2	B	Clean
Ephemeroptera	Baetidae	<i>Baetis rhodani</i>	3		1	C	Moderate
Trichoptera	Hydropsychidae	<i>Hydropsyche instabilis</i>	13			C	Moderate
Trichoptera	Philopotamidae	<i>Wormaldia oecipitalis</i>	30	32	38	C	Moderate
Trichoptera	Polycentropodidae	<i>Plectonemia conspersa</i>	2			C	Moderate
Amphipoda	Gammaridae	<i>Gammarus duebeni</i>		6	15	C	Moderate
Diptera	Pediciidae	<i>Dicranota sp.</i>		4	6	C	Moderate
Diptera	Simuliidae	<i>Simulium sp.</i>	1	38	8	C	Moderate
Diptera	Tipulidae	<i>sp. indet.</i>		1	5	C	Moderate
Diptera	Chironomidae	non-Chironomus sp.	1			C	Moderate
Hemiptera	Gerridae	Gerridae nymph	1			C	Moderate
Isopoda	Asellidae	<i>Asellus aquaticus</i>	13			D	Poor
Diptera	Chironomidae	<i>Chironomus sp.</i>	1			E	Very Poor
Total Abundance (n)			89	111	93		
Taxon Richness (n)			10	9	11		
Ephemera Plecoptera Trichoptera (% EPT Taxa)			80.9%	55.9%	63.4%		
Ecological Quality Ratio (EQR)			0.6	0.8	0.8		
EPA Q Rating			3	4	4		
WFD Status			Poor	Good	Good		

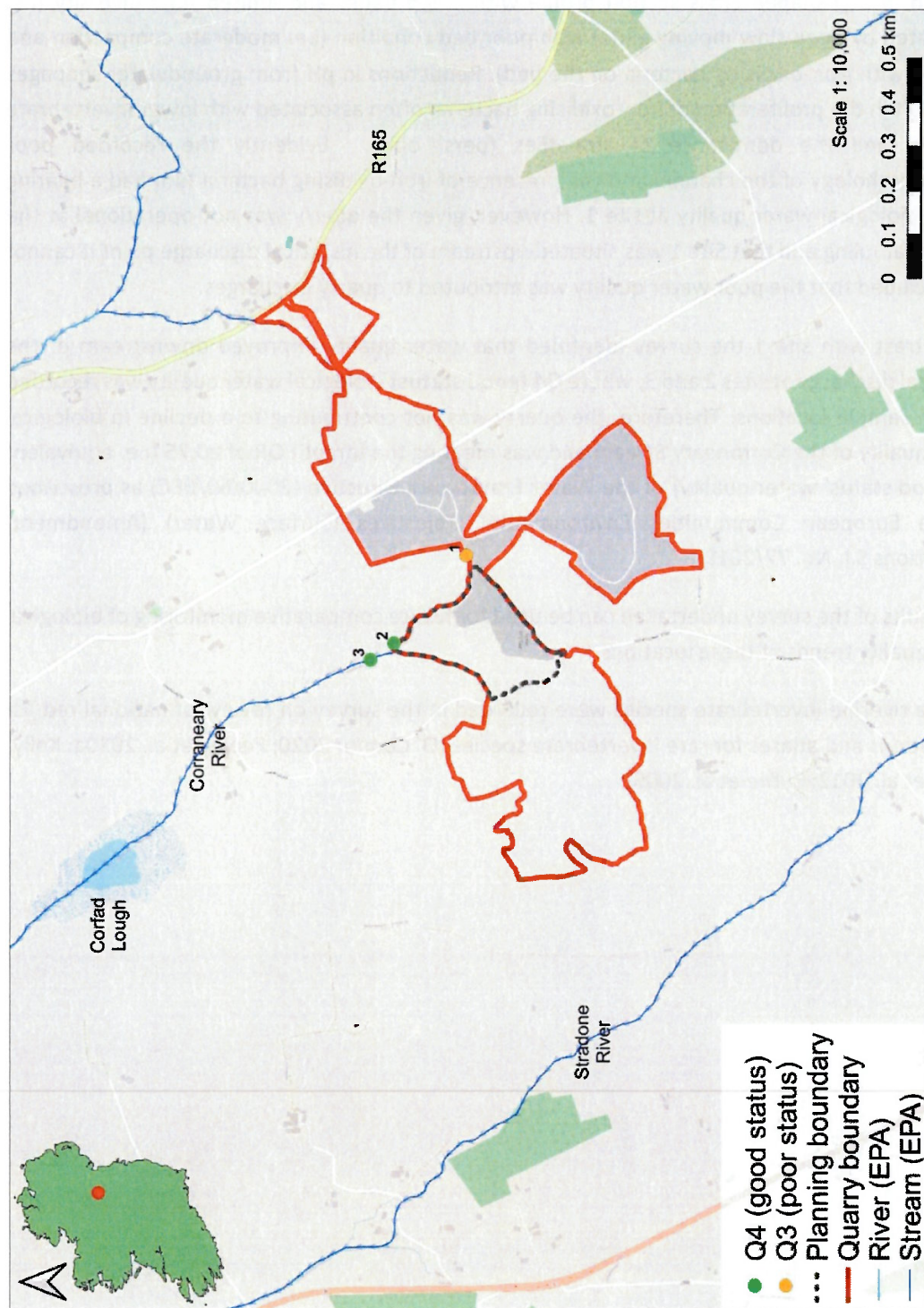


Figure 3.1 Map of biological Q ratings recorded at sites 1-3 on the Corraneary Stream during February 2024

4. Discussion

4.1 Summary of Biological Water Quality Findings

The site survey indicated poor water quality in the upper Corraneary Stream at Site 1 upstream of the historical discharge point. At this location **Q3 (poor status)** biological water quality was recorded given the absence of EPA group A species and the presence of poor water quality indicators (i.e. EPA Group D and E species). The historical deepening of the stream channel resulted in a U-shaped cross section profile with steep banks and limited flow diversity (i.e. dominated by deep slow moving glide) with poor bed condition (i.e. moderate compaction and siltation with iron-oxidising bacteria on the bed). Reductions in pH from groundwater seepages can result in the proliferation of iron-oxidising bacteria, often associated with lower invertebrate diversity and the dominance of stoneflies (pers. obs.). Evidently the recorded poor hydromorphology of the channel and the presence of iron-oxidising bacteria film had a bearing on the biological water quality at site 1. However, given the quarry was not operational at the time of sampling and that Site 1 was situated upstream of the historical discharge point it cannot be concluded that the poor water quality was attributed to quarry discharges.

By contrast with site 1 the survey identified that water quality improved downstream of the historical discharge at sites 2 and 3, where **Q4 (good status)** biological water quality was recorded at both sample locations. Therefore, the quarry was not contributing to a decline in biological water quality of the Corraneary Stream and was meeting the target EQR of ≥ 0.75 (i.e. equivalent Q4 'good status' water quality) of the Water Framework Directive (2000/60/EEC) as prescribed by the European Communities Environmental Objectives (Surface Water) (Amendment) Regulations S.I. No. 77/2019.

The results of the survey undertaken can be used for future comparative monitoring of biological water quality trends at these locations.

No rare riverine invertebrate species were recorded in the survey on review of national red-list publications and atlases for rare invertebrate species (O' Connor 2020; Feeley et al. 2020a; Kelly-Quinn et al. 2012; Byrne et al. 2009).

5. References

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Appendix D Revised Water Feature Plan (ACP-FI Fig-1)

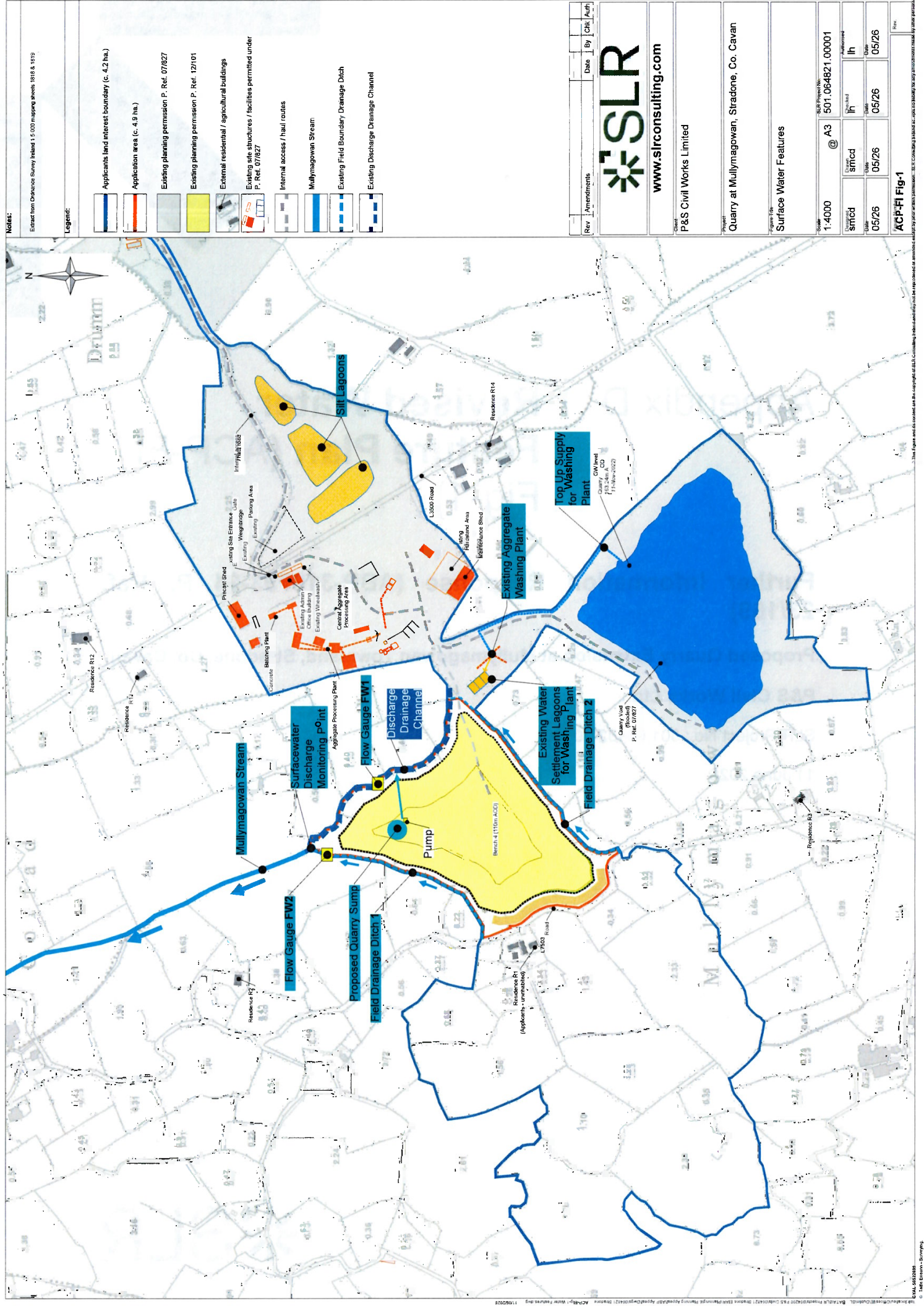
**Further Information Response (ABP-318793-24 P. Ref.
23/169)**

Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan

P&S Civil Works Ltd.

SLR Project No.: 501.064821.00001

11 June 2026





Appendix E Noise and Vibration Assessment

**Further Information Response (ABP-318793-24 P. Ref.
23/169)**

**Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan
P&S Civil Works Ltd.**

SLR Project No.: 501.064821.00001

11 June 2026

To: Ronan Murphy (Principal Acoustic Consultant)
Company: P&S Civil Works Ltd. **SLR Environmental Consulting (Ireland) Ltd**
cc: **Date:** 13 May 2026
Project No. 501.066157.00001

**RE: Mullymagowan Quarry RFI
Noise and Vibration Response**

1.0 Introduction

This Technical Note has been prepared by SLR Environmental Consulting (Ireland) Ltd (SLR Consulting) on behalf of P&S Civil Works Ltd. (P&S Civils) in response to the Further Information Request (ABP-318793-24) issued by An Coimisiún Pleanála (ACP) for the continued use of a previously permitted quarry development at Mullymagowan Townland, Stradone, Co. Cavan.

2.0 Technical Note Purpose

The purpose of this technical note is to address Item 4 of the Further Information Request issued by ACP.

Item 4: Noise and Vibration – Further Information Request

It is considered that insufficient information is provided within Chapter 10 of the EIAR and application to enable a detailed assessment of potential noise and vibration impacts of the operational phase of the proposed development on the existing residential property to the northwest of the application site (identified as R2 within Figure 10.1 of the EIAR). You are required to submit further detailed consideration and assessment of noise and vibration impacts associated with the operational phase of the proposed development on this property.

3.0 Item 4 (a) Noise Assessment

3.1 Item 4 (a) Request

The RFI requests the following:

In terms of noise impact, it is noted that Table 10.2 of the EIAR entitled "Cumulative Operational Noise Levels" identifies a Major Long-Term impact on this property in the absence of mitigation measures. Section 10.80 of the EIAR refers to measures to reduce noise impacts of plant associated with the development. However, these measures are not specifically identified or assessed within the EIAR. You are required to submit details of specific mitigation measures proposed to negate against potential noise impacts on this property. Sound Power Levels of all existing and proposed plant and machinery should be provided and considered and details of any mitigation measures detailed. Details of any existing and proposed screening/berms should be provided and assessed. Revised proposals shall be submitted if necessary.

3.2 Item 4 (a) Response

Applicable Thresholds

In the first instance, it must be noted that the extant permission (Planning Ref. 12/101) sets out the following noise limits:

- a) Noise emanating from the development measured at the facing elevation (outside) of any dwelling in the area shall not exceed, during the hours 0800 - 2000 55 dB(A) ($L_{Aeq, 1h}$) and during the hours (and Sundays) 2000 - 0800 45 dB(A) ($L_{Aeq, 1h}$). 95% of all noise levels shall comply with the specified limit value(s). No noise level shall exceed the limit value by more than 2dB(A).
- b) There shall be clearly no tonal component or impulsive component in the noise emission measured at any residence.
- c) There shall be no testing or use of alarms or sirens outdoors between 2200 - 0800 hours or on Sundays or public holidays.'

The daytime threshold of 55 dB $L_{Aeq, 1hour}$ fully aligns with the guidance set out in the EPA (2006) publication *Environmental Management Guidelines for Environmental Management in the Extractive Industry* (Non-Scheduled Minerals) (EMG-EMEI)¹ which recommends the following in respect of noise:

- *In relation to quarry developments and ancillary activities, it is recommended that noise from the activities on site shall not exceed the following noise ELVs at the nearest noise-sensitive receptor:*
 - Daytime: 08:00–20:00 h $L_{Aeq} (1h) = 55$ dBA
 - Night-time: 20:00–08:00 h $L_{Aeq} (1h) = 45$ dBA
- *Note: 95% of all noise levels shall comply with the specified limit value(s). No noise level shall exceed the limit value by more than 2 dBA.)*

The DoEHLG (2004) Guidelines for Planning Authorities (*Quarries and Ancillary Activities: Guidelines for Planning Authorities*²) recommends similar limit values.

Table 10-11 of the EIAR highlights that predicted noise levels at R2 during temporary and operational works are well within the prescribed limits, with noise during temporary works at 56 dB $L_{Aeq, 1hr}$ compared to 70 dB $L_{Aeq, 1hr}$, and noise during operational works at 47 dB $L_{Aeq, 1hr}$ compared to 55 dB $L_{Aeq, 1hr}$.

Assessment of Cumulative Impacts

The potential cumulative impacts from the proposed development have been assessed against the sample assessment matrix presented in the *Guidelines for Noise Impact Assessment* produced by the Institute of Environmental Management and Assessment (IEMA) in 2014³.

In the Noise chapter of the EIAR, cumulative noise levels were derived through logarithmically summing the predicted operational site noise levels with the existing baseline noise levels. In the case of R2, the cumulative operational noise level resulted in 6 dB increase above prevailing ambient noise levels. The IEMA *Guidelines for Noise Impact Assessment* stipulate

¹ https://www.epa.ie/publications/licensing--permitting/industrial/ied/EPA_management_extractive_industry.pdf

² <https://www.opr.ie/wp-content/uploads/2019/08/2004-Quarries-and-Ancillary-Activities.pdf>

³ [https://n-somerset.gov.uk/sites/default/files/2022-](https://n-somerset.gov.uk/sites/default/files/2022-11/CD13.05%20Guidelines%20for%20Environmental%20Noise%20Impact%20Assessment%20IEMA_0.pdf)

[11/CD13.05%20Guidelines%20for%20Environmental%20Noise%20Impact%20Assessment%20IEMA_0.pdf](https://n-somerset.gov.uk/sites/default/files/2022-11/CD13.05%20Guidelines%20for%20Environmental%20Noise%20Impact%20Assessment%20IEMA_0.pdf)



that a sound level change of ≥ 5.0 dB and < 10 dB represents a major short-term cumulative impact and a moderate long-term cumulative impact⁴.

While the Guidelines present some examples of assessment rating mechanisms, they also provide the following caveat in respect of relative limits *"relying solely on the change in noise level is not appropriate because it risks ignoring the context of the noise change"*, the guidance goes on to state that,

7.55 to address this issue, consideration also must be given to the absolute levels being encountered and how they compare with any relevant standards, guidance or relevant research. There are two aspects to this element:

- How the existing or before noise level compares with the appropriate guideline; and*
- How the final noise level relates to any relevant guidance.*

Additionally, the following is stated,

7.56 A development proposal which would cause an increase in an existing level that is already well above an existing guideline should probably be regarded as worse than if the existing level were below the guideline. If the existing noise environment is already at a level where there might be significant risk of adverse quality of life and health effects, then almost any increase in noise level, regardless of how small, is an impact which should be taken into account in the assessment.

In the case of the proposed development, the quarry has already been established, the existing and predicted noise levels are well within the noise criterion limits and the sound level change is on the lower end of the scale of which a moderate short-term/major long-term change is categorised.

Predicted Noise Levels

The predicted operational noise levels at receptor R2 fall in the region of 47 dB $L_{Aeq,1hour}$ during the operational phase with both extraction and processing activities modelled as occurring simultaneously. It is noted that this prediction reflects a worst-case scenario as all contributory noise sources are assumed to be operating at full capacity for the duration. In reality, the noise generating by the handling and movements of aggregate material is more intermittent as the primary noise generating processes relate to the loading of aggregate into articulated dump trucks for relocation to the processing area.

Additional noise modelling has been conducted in order to represent a less conservative and more realistic operational scenario. In order to reduce uncertainty, operational noise levels have been predicted at receptor R2 using proprietary software-based noise model, CadnaA. The calculation algorithms set out in ISO 9613-2:2024 *Acoustics – Attenuation of sound during propagation outdoors – Part 2 General method of calculation* have been used.

The following parameters / criteria have been used in the noise model:

- A ground absorption factor of 1 (soft ground cover) has been assumed between the application site boundary and R2; a ground factor of 0.4 (mixed ground, made up of stockpiled soil and partially compacted aggregate surfaces) has been assumed within the application site itself;
- Wind speed: 3 m/s;
- Wind direction: worst-case (source to receiver: downwind);

⁴ Please note that Sections 10.78 and 10.79 erroneously stated a moderate short-term impact and a major long-term impact



- Ambient temperature: 10°C;
- Humidity: 70%;
- A reflection factor of 3;
- Proposed and existing site layout; and,
- Detailed topographical data for the site and surrounding area.

Table 1 outlines source data used for operational plant. All sound pressure levels have been converted to sound power levels by considering the measurement distance and measurement condition, assumed to be hemispherical for all data (28 dB is the standard correction presented in BS 5228-1:2009+A1:2014). Typical operational on-time corrections have also been presented for each source.

Table 1 Source Sound Power Data

Activity	Plant Item	BS 5228-1:2009+A1:2014 Source Reference	Sound Power Level (dB L _{WA})	Assumed on time in period
Processing	Crusher	Table C11.11	114	90%
	Screen	Table C10.15	109	90%
Excavation	Drill Rig	Table C3.14	112	70%
	Excavator	Table C9.12	113	70%
	Art. Dumper	Table C10.18	111	60%

The results of the updated model suggests that in a more realistic scenario, the predicted noise level at Receptor R2 would fall in the region of 41 dB L_{Aeq,1hour} during the early phases of extraction. As the quarry bench lowers towards the latter end of the extraction period, the contribution of site noise emissions would be expected to reduce to between 35 and 40 dB L_{Aeq,1hour}.

Clarification of Impact at R2

It is noted that the predicted operational noise levels fall well below the extant and best practice operational noise threshold of 55 dB L_{Aeq,1hour}, even with a conservative assessment scenario.

Considering the existing baseline noise level of 43 dB L_{Aeq,1hour}, the expected cumulative noise level would be expected to increase to 45 dB L_{Aeq,1hour}. Reference to the sample assessment matrix in the IEMA document would suggest that this level of relative change would correspond to a negligible impact and as such no additional mitigation is required over that already described and committed to in Section 10.127 to 10.132 of the EIAR. Furthermore, it is stated within the mitigation measures section of the EIAR, see below, that the implementation of such measures can bring about a reduction of 5 dB in ambient noise levels.

- 10.127 *Where necessary, the three established strategies for impact mitigation are avoidance, reduction, and remedy. Where it is not possible or practical to mitigate all impacts, then the residual impacts must be clearly described in accordance with the system for impact description set out in the EPA Guidelines. The adoption of Best Practicable Means is generally considered to be the most effective means of controlling noise emissions.*
- 10.128 *Notwithstanding the findings of the impact assessment presented above, which determined that the proposed activities at Mullymagowan will have negligible to minor long-term noise impact, and in line with practice, the following best practice measures will be implemented wherever practicable at the site to minimise the potential noise impact of on-site activities:*



10.129 Screening:-

- Existing and new perimeter berms and hedge planting screening surrounding the site will be retained.

10.130 Plant:-

- all mobile plant used at the development will have noise emission levels that comply with the limiting levels defined in EC Directive 86/662/EEC and any subsequent amendments;
- all plant items will be properly and regularly maintained and operated according to the manufacturers' recommendations, in such a manner as to avoid causing excessive noise (i.e., all moving parts are kept well lubricated, all cutting edges are kept sharpened, the integrity of silencers and acoustic hoods are maintained);
- all plant will be fitted with effective exhaust silencers which are maintained in good working order to meet manufacturers' noise rating levels. Any defective silencers will be replaced immediately.

10.131 Traffic:-

- all operations on site will be programmed to be carried out during daytime hours only;
- care will be taken when loading vehicles to reduce or minimise potential disturbance to local residents;
- access / internal haul roads will be kept clean and maintained in a good state of repair, i.e., any potholes are filled, and large bumps removed, to avoid unwanted rattle and "body-slap" from heavy goods vehicles;
- vehicles waiting within the quarry will be prohibited from leaving their engines running and there should be no unnecessary revving of engines.

10.132 Experience from other sites has shown that by implementing these measures, typical noise levels from construction works can bring about a reduction of 5dB(A) or more in ambient noise levels.

4.0 Item 4 (b) Vibration

4.1 Item 4 (b) Request

The RFI requests the following:

Given the proximity of the proposed quarry area to the property to the northwest the you are required to provide an assessment of potential vibration impacts on this property. An additional vibration monitoring point shall be identified in the vicinity of this property. Revised proposals shall be submitted if necessary.

4.2 Item 4 (b) Response

Typical day to day operations at the site will not give rise to any perceptible levels of vibration at Receptor R2. The primary source of vibration with potential to impact the residents is the infrequent blasting which will vary based on material demand however it is expected to occur 5 to 6 times a year based on the overall extraction rate of 250,000 tpa.

Blast vibration can be predicted using scaled distance calculations, which are effectively determination the relationship between blast inputs and resultant blast vibration levels.



Typically scaled distance calculations rely on major assumptions regarding underlying geology (joints, faults, layering), weathering profiles and attenuation characteristics. As a result, they tend towards high levels of uncertainty. Estimation of blast vibration is not possible without a high degree of uncertainty.

Historical blast monitoring data directly captures these site-specific effects, reflecting the actual transmission characteristics between the blast site and receptors.

Previous blast monitoring data that was presented in the EIAR accompanying the February 2023 planning application recorded measurements at the vibration monitoring point, V1 at Receptor R3. The monitoring position therefore was located between 130 m and 400 m from the quarry void that was subject to blasting at that time. Any future blasting associated with the proposed continuation of the quarry extension that was permitted under P. Ref. 12/101 would be located between 200 m and 460 m from R2. Therefore, the previous monitoring of blasts at R3 is comparable to potential impact of blasting at R2 from the continuation of the quarry extension.

Table 2 Historical Blast Vibration Monitoring at Receptor R3

Date	Position	Location	PPV			AOP (dB)	Resultant mm/s
			(L)	(V)	(T)		
07/10/2008	V1	Residence R3	2.07	3.24	4.22	117	5.04
25/11/2008	V1	Residence R3	0.97	1.17	1.21	113	1.44
16/02/2009	V1	Residence R3	2.19	2.77	2.30	110	3.75
10/06/2009	V1	Residence R3	4.19	3.99	4.25	111	6.40
14/08/2009	V1	Residence R3	3.32	3.67	6.06	100	6.65
17/11/2009	V1	Residence R3	6.18	4.61	7.51	116	7.90
10/12/2009	V1	Residence R3	4.10	5.55	2.85	123	5.67
08/02/2010	V1	Residence R3	1.87	3.13	1.25	121	3.20

It can be seen that peak vibration levels ranged between 1.2 and 7.5 mm/s PPV which falls well below the extant permitted 12 mm/s PPV which is recommend to prevent cosmetic damage. While persistent or regular vibration at these magnitudes would be expected to be easily perceptible in residential environment, due to the transient and highly infrequent nature of the vibration, it is expected to be wholly tolerable once prior warning and explanation has been provided.

No additional mitigation is required over that already described and committed to in Section 10.133 to 10.134 of the EIAR.

10.133 The blast design and blasting methodology for the site operations carried out within the planning application area have been and will be optimised to ensure that the levels have been and are within existing site emission limits.

10.134 The following measures have been and are implemented at the planning application area to minimise disturbances due to blasting operations. These mitigation measures are in accordance with the 'best practice / mitigation' measures:

- blasting to be carried out between the hours of 10:00 hrs to 17:00 hrs from Monday to Friday (except in emergencies or for health and safety reasons beyond the control of the operator). A blast must be carried out*



on site on the specified day, as concerns over security does not allow for explosives to be stored on site;

- *no blasting to be carried out on Saturdays, Sundays or public holidays;*
- *blast notifications to be provided for residences within the vicinity of the quarry and by pre and post siren warnings;*
- *all blasting operations to be carried out by a certified 'shotfirer' in accordance with the relevant health and safety regulations;*
- *the optimum blast ratio is maintained, and the maximum instantaneous charge is optimised.*
- *to avoid any risk of damage to properties in the vicinity of the site, the groundborne vibration levels from blasting does not exceed a peak particle velocity of 12 mm/sec.*

Regards,

SLR Consulting Limited

Ronan Murphy

Principal Consultant/Acoustics & Vibration



Appendix F **Tree Survey and Schedule**

**Further Information Response (ABP-318793-24 P. Ref.
23/169)**

Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan

P&S Civil Works Ltd.

SLR Project No.: 501.064821.00001

11 June 2026



ACP RFI Item 5a – Tree Survey

**Proposed Quarry Extension at Mullymagowan Townland,
Stradone, Co. Cavan (ABP-318793-24 P. Ref. 23/169)**

P&S Civil Works Ltd.

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SLR Project No.: **501.066157.00001**

Client Reference No: **904200**

19 May 2026

Revision: 1

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1	19 May 2026	A. Merkle	L. Hassett	A. Merkle

Basis of Report

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FIGURES

Figure T-1 Tree Survey and Landscaping Plan



1.0 Introduction

This Tree Survey report has been prepared to address Item 5(a) of a request for further information (RFI) from An Coimisiún Pleanála (ACP) in relation to the appeal concerning a quarry development at Mullymagowan Townland, Stradone, Co. Cavan. (Cavan Planning Reference 23/169; ABP-318793-24).

The proposed quarry development is for the extension of an existing quarry and associated processing, as was previously permitted under P. Ref. 12/101 (P. Ref. 17/383) and never commenced. It is further proposed to utilise existing ancillary buildings and facilities / activities, as currently permitted by P. Ref. 07/827.

Item 5 (a) of the ACP Request for Further Information states that:

“(a) Insufficient information is provided in relation to the woodland habitat proposed for removal. You are required to submit a tree survey (to be carried out in accordance with best practice) and tree schedule (and accompanying mapping) indicating the number and type of trees to be removed to accommodate the development and those proposed to be retained. You shall provide an impact assessment of the removal of the woodland habitat. A description of the methodology proposed for tree removal shall be provided. You are furthermore required to provide a landscaping plan for the development.”

2.0 Tree Survey

2.1 Site Information / History

The planning application area, alternatively hereafter referred to as the site, is located in the townland of Mullymagowan, Co. Cavan, approximately 4.5km south of the village of Stradone. The site comprises a number of undulating pasture fields, parts of which have become encroached by dense tree / shrub vegetation. Also included within the site is an area which was stripped and has been used for stockpiling. Some of the internal and external field boundaries are marked by a mix of hedgerows and tree lines.

The GeoHive Map Viewer (www.geohive.ie) was reviewed to investigate past land uses and associated tree cover of the site. The 6 Inch First Edition mapping, which was surveyed between 1829 and 1834, indicates that the application area consisted of a combination of agricultural fields and areas with rocky outcrops (assumed to be the steeper sections within the site). No treelines or woodland areas are indicated within or immediately surrounding the site. The 25 Inch mapping, surveyed between 1863 and 1924, confirms this, as well as breaking up the site into 11 land parcels.

Further to the historic mapping, the aerial photographs available on the GeoHive Map Viewer, dating from 1995-2018, were reviewed. It appears that hedgerows / treelines were present on some, but not all, of the boundaries of the land parcels (visible on the 25 Inch mapping) in 1995. Also, the areas of rocky outcrops (visible on the 6 Inch and 25 Inch mapping) appear to be densely covered by woody vegetation (i.e. trees and shrubs), similar to what is present on site to this day.

It is assumed that, except for some of the treelines and hedgerows, the majority of woody vegetation has developed naturally, due to a lack of management on the most steeply sloping / rocky sections of the site. Over the years this woody vegetation has also encroached on some of the flatter sections of the site, as is now evident, possibly due to low levels of cattle grazing currently taking place.



2.2 Tree Survey Methodology

A tree survey, based on *British Standard (BS) 5837:2012 – Trees in relation to design, demolition and construction – Recommendations*, was carried out on 22nd April 2026.

The tree survey was carried out and this report produced by Anne Merkle a Principal Landscape Architect with SLR Consulting, who holds a Level 3 Technicians Certificate in Arboriculture (ABC Awards) and is a Technician Member of the Arboricultural Association (TechArborA), since 2010.

In line with the RFI request, the survey concentrated on identifying the trees to be removed and those to be retained. This comprises trees within the planning application area and along its boundaries. Please refer to **Figure T-1 – Tree Survey and Landscaping Plan** at the end of this report, for the application area and the proposed extraction area marked on an aerial photograph of the site, as well as an indication of the areas containing woody vegetation surveyed. These are numbered from A01 to A20 for the purpose of this report.

The surveyed areas of woody vegetation, contain both trees and shrubs, many of which do not fall under the survey criteria of BS5837:2012 (i.e. stem diameter of 75mm, 1.5m above ground level, for individual trees and 150 mm in woodlands or tree groups). Or in the case of shrubs, these are to be recorded as shrub masses, with an indication of their height, spread and the species present.

While there are a small number of larger / mature trees present on site, these are all located within the areas of mostly dense vegetation, along treelines or hedgerows. They were therefore assessed, as groups / shrub masses, treelines or hedgerows, which is in line with BS5837. Due to the density / inaccessibility of the majority of the surveyed areas, as well as large numbers of small / young plants present, it is not feasible to record the total number of individual trees (of any size) to be removed. Instead, the total area of woody vegetation to be removed and the type of trees / shrubs contained within each area are provided.

To provide an indication of the most notable large / mature trees to be removed, their approximate location within the surveyed areas are indicated on **Figure T-1** and some observations on these trees are provided in **Table B – Tree Survey Schedule**, below. It should, however, be noted that many of these trees were inaccessible and the observations had to be made from a distance.

2.2.1 Tree Survey Data

The tree survey data collected focused on the elements requested as part of RFI Item 5(a), i.e. the number and type of trees present. As mentioned above the 'number of trees' present is given in total area of woody vegetation, rather than individual tree numbers. The 'type of trees present' is interpreted as the tree species, tree age (i.e. life stage), and condition (i.e. general observations and category grading). In addition, the estimated height range of the trees and shrubs present in each of the areas and stem diameters of the largest trees present were collected.

The methodology used to record the tree data is set out in **Table A – Tree Survey Schedule Key** and the requested data is provided in **Table B – Tree Survey Schedule**. The category grading, which is based on that set out in BS 5837:2012 (Table 1), is provided in **Table C**.



Table A: Tree Survey Schedule Key

Parameters Assessed	Details
Tree ID / Ref. No.	'A' denotes Survey Area (the following letters in brackets, identify the type of vegetation present: 'G' denotes Tree Group (including shrub masses), 'H' denotes Hedgerow and 'TL' denotes Treeline).
Species	Botanical and common name (note: dominant species in survey areas with multiple species are highlighted in bold).
Height	Minimum to maximum height, estimated to the nearest metre.
Stem Diameter	Measured at 1.5 m above ground level. (for multi-stem trees each stem diameter is recorded and the overall diameter was calculated as set out in section 4.6.1 of BS5837:2012). Where the tree is inaccessible due to vegetation or obstacles then the stem diameter was estimated. For groups and woodlands, the stem diameter shown is the maximum recorded.
Life Stage	Young: Newly planted / self-seeded tree 0-10 years. Semi-Mature: Tree in the first third of its normal life expectancy for the species (significant potential for future growth in size). Early Mature: Tree in the second third of its normal life expectancy for the species (some potential for future growth in size) Mature: Tree in the final third of its normal life expectancy for the species (having typically reached its approximate ultimate size). Over Mature: Tree beyond the normal life expectancy for the species. Veteran: Tree, which is of interest biologically, aesthetically or culturally because of its condition, size or age.
General Observations	General description of the survey areas, including information on whether they can be retained (marked in green) or will need to be removed (in red). May include structural and / or physiological condition (e.g. the presence of any decay and physical defect) and / or preliminary management recommendations.
Estimated Remaining Contribution & Category Grading	Recorded on the tree schedule for groups (excluding gorse dominated shrub masses) and treelines. See Table C for the Cascade Chart for Tree Quality Assessment (taken from BS 5837:2012; Table 1). Note: Trees can be grouped if they form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally, including for biodiversity (e.g. parkland or woodland pasture). The category grading for a group of trees does not necessarily imply that the individual trees within that group are the same grading. The group is viewed as a whole and individual trees within it may have a lower grading.
RPA Radius	The Root Protection Area (RPA) is calculated using the stem diameter. The RPA is an area equivalent to a circle with a radius 12 times the stem diameter for a single stem tree. BS 5837:2012 limits the maximum RPA to 707 square metres (m ²), i.e. equivalent to a circle with a radius of 15m or a square with approximately 26m sides. Note: RPAs are not provided for any of the overall surveyed areas, due to the great variety of tree sizes (and many small / young trees and shrubs having negligible RPAs) present within each of these. Also, all trees within the extraction area will have to be removed, rendering their RPAs irrelevant. Instead, RPAs are provided within the 'General Observation' column for small groups and trees of note along treelines or hedgerows, which are to be retained (also refer to Figure T-1 , for an illustration of these RPAs).



Table B: Tree Survey Schedule (Refer to Figure T-1)

Ref No.	Species Botanical name (Common Name)	Estimated Height (m)	Stem Diameter (mm)	Life Stage	General Observations	Estimated Remaining Contribution (Years)	Category
A1 (G)	<i>Acer pseudoplatanus</i> (Sycamore) <i>Corylus avellana</i> (Hazel) <i>Crataegus monogyna</i> (Hawthorn) <i>Fraxinus excelsior</i> (Ash) <i>Prunus spinosa</i> (Blackthorn) <i>Salix</i> sp. (Willow) <i>Sambucus nigra</i> (Elder) <i>Ulex europaeus</i> (Gorse)	1-15	600 maximum	Young Semi-mature Early-mature Mature	Dense group / shrub mass. Dominated by hawthorn, blackthorn or gorse in different areas. Other species listed, at multiple life stages, scattered throughout the area. Some larger ash (signs of ash dieback present) and sycamore, most notably ca. 13 mature trees with stem diameters up to 600 mm in vicinity of north-western boundary of A1. 'Understorey' of bramble, ivy and gorse. Needs to be almost fully removed, as located within proposed extraction area. Those trees / shrubs on the north-western boundary (outside the extraction area) can be retained.	40+	B2
A2 (G)	<i>Crataegus monogyna</i> (Hawthorn) <i>Sorbus</i> sp. (Whitebeam sp)	3-5	100 max.	Semi-mature Early-mature	Gappy group of multi-stem shrubs on a rocky outcrop. Understorey of ivy and bramble. Needs to be fully removed, as located within proposed extraction area.	40+	C2
A3 (G)	<i>Corylus avellana</i> (Hazel) <i>Crataegus monogyna</i> (Hawthorn) <i>Fraxinus excelsior</i> (Ash)	5-8	250 max.	Semi-mature Early-mature	Group of 1 ash (signs of ash dieback present), 1 hazel and 2 hawthorn (ivy clad stems) on site boundary (RPA = 3.0 m max.); Can be fully retained, as located on site boundary, at sufficient distance to extraction area.	20-40	C2
A4 (G)	<i>Salix</i> sp. (Willow) <i>Ulex europaeus</i> (Gorse)	1-6	200 max.	Young Semi-mature Early-mature	Gappy group of self-seeded, multi-stem willow and gorse amongst rubble. Needs to be fully removed, as located within proposed extraction area.	40+	C2
A5 (G)	<i>Salix</i> sp. (Willow) <i>Ulex europaeus</i> (Gorse)	1-4	100 max.	Young Semi-mature	Gappy group of self-seeded, multi-stem willow and gorse amongst rubble. Needs to be fully removed, as located within proposed extraction area.	40+	C2



Ref No.	Species Botanical name (Common Name)	Estimated Height (m)	Stem Diameter (mm)	Life Stage	General Observations	Estimated Remaining Contribution (years)	Category
A6 (G)	<i>Salix sp.</i> (Willow)	2-8	400 max.	Young Semi-mature Early-mature	Line of self-seeded, multi-stem willow on slope along northern boundary (forming dense screen). Can possibly be fully retained, as located on slope along site boundary, outside the extraction area (note: if partial removal required, willow is expected to regrow).	40+	B2
A7 (G)	<i>Salix sp.</i> (Willow) <i>Crataegus monogyna</i> (Hawthorn)	1-6	200 max.	Young Semi-mature	Line of self-seeded, multi-stem willow at bottom of slope along northern boundary (not providing a dense screen). Row of ca. 4 hawthorn near western end of line (ivy clad stems). Can be fully retained, as located on site boundary, at bottom of slope, at sufficient distance to extraction area.	40+	C2
A8 (G)	<i>Salix sp.</i> (Willow) <i>Ulex europaeus</i> (Gorse)	4-6	200 max.	Young Semi-mature	Gappy line of self-seeded, multi-stem willow and gorse along site boundary. Can be fully retained, as located on site boundary, at sufficient distance to extraction area.	40+	C2
A9 (G)	<i>Salix sp.</i> (Willow) <i>Ulex europaeus</i> (Gorse)	2-6	200 max.	Semi-mature Early-mature	Gappy group of self-seeded, multi-stem willow. Some gorse present as well. Can be largely retained, as located on site boundary, outside the extraction area, except for one shrubby willow.	40+	C2
A10 (G)	<i>Salix sp.</i> (Willow)	4-5	150 max.	Semi-mature	Group of three self-seeded, multi-stem willow on side of bramble covered mound. Can possibly be retained, as located outside the extraction area (note: if partial removal required, willow is expected to regrow).	40+	C2
A11 (G)	<i>Cornus sanguinea</i> (Dogwood) <i>Salix sp.</i> (Willow) <i>Ulex europaeus</i> (Gorse)	1-5	50 max.	Young Semi-mature	Dense mass of self-seeded, multi-stem willow and gorse on berm. Dogwood near north-end. Needs to be fully removed, as located within proposed extraction area.	N/A	N/A



Ref No.	Species Botanical name (Common Name)	Estimated Height (m)	Stem Diameter (mm)	Life Stage	General Observations	Estimated Remaining Contribution (Years)	Category
A12 (G)	<i>Salix</i> sp. (Willow) <i>Sorbus aucuparia</i> (Rowan) <i>Ulex europaeus</i> (Gorse)	1-3	N/A	N/A	Dense mass of gorse. 1 rowan (ivy-clad) and 1 willow (both ca. 6-8 m height) near east-end. Needs to be fully removed, as located within proposed extraction area.	N/A	N/A
A13 (G)	<i>Prunus spinosa</i> (Blackthorn) <i>Salix</i> sp. (Willow) <i>Ulex europaeus</i> (Gorse)	1-5	N/A	N/A	Dense mass of gorse. Occasional willow and blackthorn. Bramble throughout. Can be fully retained, as located outside extraction area.	N/A	N/A
A14 (G)	<i>Prunus spinosa</i> (Blackthorn) <i>Salix</i> sp. (Willow) <i>Ulex europaeus</i> (Gorse)	1-5	N/A	N/A	Dense mass of gorse. Occasional willow and blackthorn. Bramble throughout. Can be fully retained, as located outside extraction area.	N/A	N/A
A15 (TL)	<i>Acer pseudoplatanus</i> (Sycamore) <i>Crataegus monogyna</i> (Hawthorn) <i>Fraxinus excelsior</i> (Ash) <i>Prunus spinosa</i> (Blackthorn)	4-15	600 max.	Semi-mature Early-mature Mature	Line of 4 mature sycamore and 2 ash (signs of ash dieback present; ivy clad stems) with an understory of hawthorn and blackthorn. Needs to be almost fully removed, as located within proposed extraction area, except for 1 sycamore close to the site boundary, which can be retained (RPA = 7.2 m, most of which is outside the extraction area).	40+	B2
A16 (TL)	<i>Acer pseudoplatanus</i> (Sycamore) <i>Crataegus monogyna</i> (Hawthorn) <i>Fraxinus excelsior</i> (Ash) <i>Prunus spinosa</i> (Blackthorn)	4-15	600 max.	Semi-mature Early-mature Mature	Line of multiple semi-mature and mature sycamore and some ash along boundary, in north-western corner of site. Understorey of hawthorn. One mature sycamore, located ca. 5 m from site boundary (two large stems, 600 mm diameter each; RPA = 10.2 m) Can be fully retained, as located on / near site boundary, at sufficient distance to extraction area.	40+	B2



Ref No.	Species Botanical name (Common Name)	Estimated Height (m)	Stem Diameter (mm)	Life Stage	General Observations	Estimated Remaining Contribution (years)	Category
A17 (H)	<i>Corylus avellana</i> (Hazel) <i>Crataegus monogyna</i> (Hawthorn) <i>Fraxinus excelsior</i> (Ash) <i>Salix</i> sp. (Willow)	3-10	N/A	N/A	Unmanaged hedgerow, associated with watercourse along northern half of north-eastern boundary. Mostly multi-stem tall willow, but some large / mature ash (signs of ash dieback present; ivy clad stems), hazel and hawthorn as well. Can be fully retained, as located on site boundary, at sufficient distance to extraction area.	N/A	N/A
A18 (H)	<i>Crataegus monogyna</i> (Hawthorn) <i>Salix</i> sp. (Willow) <i>Ulex europaeus</i> (Gorse)	3-6	N/A	N/A	Unmanaged hedgerow, associated with watercourse along southern half of north-eastern boundary. Dominated by multi-stem tall willow. Occasional gorse and hawthorn. Can be fully retained, as located on site boundary, at sufficient distance to extraction area.	N/A	N/A
A19 (H)	<i>Crataegus monogyna</i> (Hawthorn) <i>Fraxinus excelsior</i> (Ash) <i>Picea</i> sp. (Spruce) <i>Sambucus nigra</i> (Elder) <i>Ulex europaeus</i> (Gorse)	1-15	N/A	N/A	Unmanaged hedgerow along western boundary. Dominated in sections by gorse or hawthorn. Occasional ash and elder. Two mature spruce near northern end (Each with a stem diameter of 700 mm; RPA = 8.4 m). Can be fully retained, as located on site boundary, at sufficient distance to extraction area.	N/A	N/A
A20 (H)	<i>Crataegus monogyna</i> (Hawthorn) <i>Ulex europaeus</i> (Gorse)	1-4	N/A	N/A	Unmanaged hedgerow along western boundary. Dominated in sections by gorse or hawthorn. Can be fully retained, as located on site boundary, at sufficient distance to extraction area.	N/A	N/A



Table C: Cascade Chart of Tree Quality Assessment (Taken from BS 5837:2012)

Category and definition		Criteria (including subcategories where appropriate)		
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years		- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>		
		1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years		Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years		Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm		Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value



2.3 Tree Retention / Removal

2.3.1 Trees to be retained

All woody vegetation (i.e. trees and shrubs), along the site boundaries and within the application area, but outside the proposed extraction areas, will be retained.

The following survey areas can be fully retained, as they are fully located outside and at a sufficient distance to the proposed extraction area:

- **A03, A07, A08, A13, A14 & A16-20.**

Further to that, the following survey areas can be largely retained. Please note the descriptions of those sections that may require removal:

- **A06:** some of the willow along the edge of the extraction area may be damaged, in the course of the extraction works; however, willow are known to prolifically regrow when cut, so are expected to recover quickly from any damage;
- **A09:** one willow associated with A09 will have to be removed, as fully located within the extraction area, while all other plants associated with this group are located outside and are therefore unlikely to be affected); and
- **A10:** refer to A06.

2.3.2 Trees to be removed

All woody vegetation within the extraction area and some along its boundaries will have to be removed. The total area of said vegetation to be removed is ca. 12,370m², including in the region of 25 tall / mature sycamore and ash.

The affected survey areas are listed below. Please note the descriptions of some sections of these areas that can be retained:

- **A01:** a small section of this group is located along the north-western boundary, outside the extraction area, which can therefore be retained;
- **A02, A04, A05, A11, A12;** and
- **A15:** the sycamore located furthest north-west along this treeline, i.e. closest to the site boundary, is located outside the extraction area. While the south-eastern edge of the RPA of this tree may be encroached by the extraction area, enough of the RPA will be unaffected, so that it is considered viable to attempt to retain this tree.

3.0 Tree Protection Measures

In order to protect the trees to be retained from damage, it is proposed to prevent access by any kind of vehicles or machinery into the area between the extraction area boundary and the site boundaries. This is with the exception of the existing access road, at the eastern corner of the site.

In order to achieve this, the removal of vegetation will be carried out from within the extraction area boundaries only. This will be carried out in phases, in line with the progress of the extraction works.

As soon as the vegetation has been cleared along a minimum of 20 m of the extraction area boundary, a post and wire fence will be installed, along the cleared section. This fence will have the dual purpose of preventing access into the area outside the extraction area, by any vehicles / machinery used in the extraction process, as well as securing the top of the quarry faces from outside access.



4.0 Impact of Removal of Woodland Habitat

Please refer to the updated ecological report set out in Appendix G of the ACP RFI response document for the assessment of the impact of the removal of the woodland habitat, based on this Tree Survey Report.

5.0 Tree removal methodology

All woody vegetation will be removed outside the bird breeding season (1st March – 31st August), in line with Section 40 of the Wildlife Act 1976, as amended.

A pre-commencement survey shall be undertaken by an ecologist prior to any new section of vegetation being due to be removed, in order to check that there are no species present on site, which would render the removal of vegetation illegal under Irish Law.

All tree / shrub removal will be carried out by suitably trained personnel, to ensure the appropriate and lawful removal of vegetation is undertaken, using appropriate equipment for the task (e.g. chainsaws).

6.0 Landscaping Plan / Compensation Planting Details

The loss of trees and shrubs will be partially compensated by the planting of ca. 1,315 m² of a native woodland mix on the buffer area (i.e. currently pastureland) between the local road to the west of the site and the western boundary of the extraction area. This planting will be carried out in the first planting season (i.e. November-March for bare-root planting) following the commencement of the development, by a suitably qualified landscape contractor and in line with current best practice .

These planting works form part of the landscape and restoration measures for the proposed development, as was detailed on **EIAR Figure 2-4** (Landscape and Restoration Plan), as submitted with the planning application. This proposed planting is replicated on **Figure T-1** enclosed with this report (i.e. proposed compensation planting).

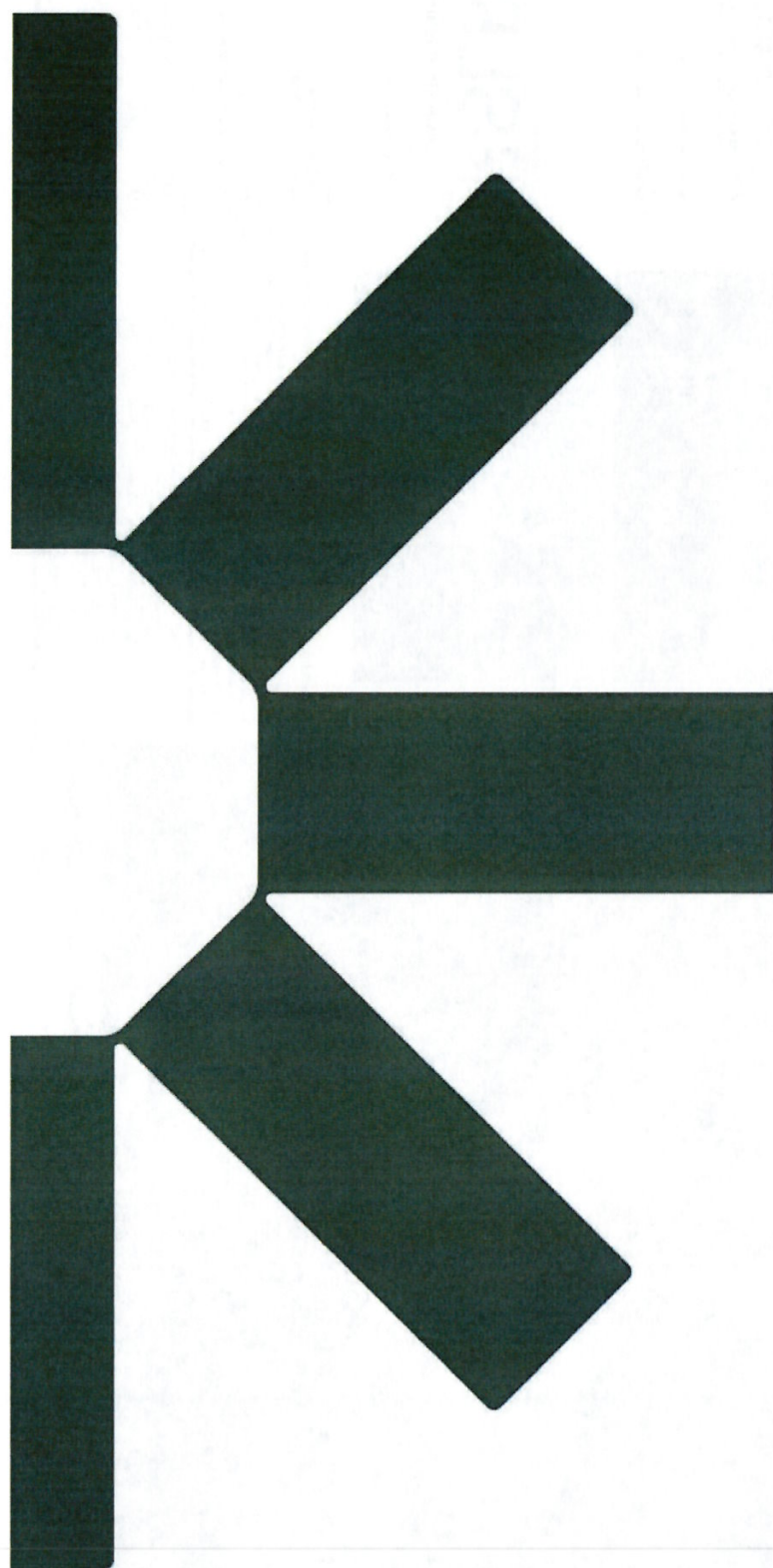


FIGURE T-1

Tree Survey and Landscaping Plan







Making Sustainability Happen



Appendix G **Revised EclA**

Further Information Response (ABP-318793-24 P. Ref. 23/169)

Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan

P&S Civil Works Ltd.

SLR Project No.: 501.064821.00001

11 June 2026

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INTRODUCTION

- 5.1 This Biodiversity chapter forms part of the Environmental Impact Assessment Report (EIAR) prepared for P&S Civil Works Ltd. in support of a planning application to Cavan County Council to allow for the proposed quarry extension at Mullymagowan townland, Stradone, Co. Cavan.

Background

- 5.2 P&S Civil Works Ltd. has been operating the quarry commercially since 1968. The existing quarry at Mullymagowan produces high polished stone value (PSV) chippings to local authorities, both directly and through building suppliers. The planning application is to provide for the supply of aggregates for the local construction industry in the short to medium term.

General Description of the Site

- 5.3 The overall landholding of the applicant (which comprises their existing quarry) straddles the three townlands of Mullymagowan, Drummuck and Tirlahode Lower. The application site itself is centred at approximate Irish Transverse Mercator (ITM) 652679 X 799890 Y and is located fully within the townland of Mullymagowan, being c. 4.5km south of Stradone village and c. 10km southeast of Cavan town. The proposed extension area is approximately 4.9ha in size with a proposed extraction area of approximately 4.0ha
- 5.4 The general area is rural and agricultural in nature and characterised by a gently undulating topography associated with the indigenous drumlin landscape. Views in the area are generally enclosed by a series of low-lying hills, hedgerows and trees. Coniferous woodland features are also dispersed in the landscape. There are a number of minor worked gravel pits in the wider area. There is an active hard rock quarry in operation at Lavey, c. 1.4km southwest of the application site on the opposite side of the N3 road.

Brief Project Description

- 5.5 The proposed development being applied for under this planning application is to:
- Quarry extension development for rock extraction and associated processing over an area of c. 4 hectares within an overall planning application area of c. 4.9 hectares as previously permitted under P. Ref. 12/101 (P. Ref. 17/383) and never commenced;
 - A time period of 15 years is being sought to allow the previously permitted extraction be completed plus 2 years to complete restoration works (total duration sought 17 years);
 - The development proposed seeks to utilise existing ancillary buildings and facilities including weighbridge, wheelwash, portacabin office/canteen/toilet, waste water treatment system, processing plant, site entrance and all other associated site works, and ancillary activities as permitted by P. Ref. 07/827; and
 - Final restoration of the worked out quarry to a permanent water body and naturally regenerated wildlife habitat area.
- 5.6 As the proposals relate to the extension of an existing and established operation, there is no requirement for any new site infrastructure or facilities as part of this application.
- 5.7 A full project description is provided in Chapter 2 of this EIAR.

Purpose of this Report

- 5.8 The purpose of this biodiversity chapter is to describe the baseline ecological conditions at the Site and to identify potential significant effects associated with the proposed development. Where necessary appropriate mitigation measures will be set out to reduce residual effects to a suitable level.
- 5.9 This chapter forms part of the EIAR that will be submitted with the application for permission to assist the competent authority, in this case Cavan County Council, to carry out an Environmental Impact Assessment (EIA) of the proposed quarry extension.

Evidence of Technical Competence and Experience

- 5.10 The habitat survey was carried out by SLR project ecologist Victoria Molloy.
- 5.11 This report was prepared by Victoria Molloy and the technical review was carried out by SLR associate ecologist Michael Bailey.
- 5.12 Updates to this report were made by Michael Bailey following additional site surveys carried out in April, May and June 2026 relating to habitats, bats and breeding birds, in particular breeding sand martin.
- 5.13 Victoria Molloy holds a BSc. in Zoology from the University of Galway (formerly National University of Ireland, Galway). She has been working in consultancy for two years and has experience in terrestrial ecology, ornithological surveys, and in the preparation of Appropriate Assessments under the Habitats Regulations/Directive and in the writing of Natura Impact Statements. Victoria is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM).
- 5.14 Michael Bailey holds a BSc. in Biology and Ecology from the University of Ulster and an MSc. in Quantitative Conservation Biology from the University of the Witwatersrand in Johannesburg. He has extensive experience in ecological studies and assessments across a range of sectors in Ireland and of agricultural, mining and renewable energy projects across Africa. He is a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM).

Legislation and Policy

Legislation

- 5.15 The following legislation are relevant to this report:
- The EIA Directive (2014/52/EU);
 - The Habitats Directive (92/43/EEC);
 - The Birds Directive (2009/147/EC);
 - European Communities (Birds and Natural Habitats) Regulations, 2011 - 2015.
 - The Wildlife Acts 1976 as amended;
 - Wildlife (Amendment) Act, 2000, 2010, 2012;
 - The Flora (Protection) Order 2015.
 - The Planning and Development Acts 2000 to 2020 - PART XAB.
- 5.16 The details of these legislation are summarised in **Appendix 5-A** of this report.

Local Planning Policy

- 5.17 The relevant local planning policies have been extracted from the Cavan Development Plan 2022-2028 and are presented in **Appendix 5-A** of this report. These policies are specific to “Chapter 10: Natural Heritage” of the development plan and are concerned with the policies and objectives relating to biodiversity and designated sites.

METHODOLOGY

- 518 The methods used to carry out the survey of the Site, to evaluate the ecological value and to prepare the biodiversity chapter is outlined in this section. The assessment methodology for this report is in accordance with the Guidelines for Ecological Impact Assessment published in 2024 by the Chartered Institute of Ecology and Environmental Management (CIEEM).

Scope of the Chapter

- 5.19 The scope of this Biodiversity Chapter is to identify potential impacts likely to occur as a result of the proposed quarry extension, and to determine if the effects on biodiversity are significant. The scope of the report includes the provision of mitigation, compensation and enhancement measures as required.

Zone of Influence

- 5.20 The ‘zone of influence’ for a project is the area over which ecological features may be subject to significant effects because of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2024).
- 5.21 The ‘zone of influence’ for the project can be identified through review of the nature of the proposed development / works, the presence / absence of surface water receptors, the presence of ecological connectivity to the wider landscape and distance from known ecologically sensitive sites.

Desk Study

- 5.22 A desk study was carried out to collate the available existing ecological information on the Site. The Site and the surrounding area were viewed using existing available satellite imagery using Google maps¹ and Bing maps².
- 5.23 The National Parks and Wildlife Service (NPWS)³ and the National Biodiversity Data Centre (NBDC)⁴ online resources were accessed for information on sites designated for nature conservation and on protected habitats and species known from the 2 km grid squares H50F and N59J. Only records for the past 10 years are considered within this report as older records are unlikely to still be relevant given their age and the changes in land management that is likely to have occurred in the intervening period. Environmental Protection Agency (EPA) Maps⁵ were

¹ <https://www.google.ie/maps> (last accessed 25 May 2026)

² <https://www.bing.com/maps> (last accessed 25 May 2026)

³ <https://www.npws.ie/> (last accessed 25 May 2026)

⁴ <https://maps.biodiversityireland.ie/> (last accessed 25 May 2026)

⁵ <http://gis.epa.ie/> (last accessed 25 May 2026)

accessed for other environmental information, such as surface water features, relevant to preparation of this report.

- 5.24 Cavan County Council's website⁶ was accessed for information on relevant planning policy, while the planning portal⁷ was accessed for information on other proposed or permitted developments within the Site and immediate surrounding area.
- 5.25 Birds of Conservation Concern in Ireland (BoCCI) 2020-2026 (Gilbert et al 2021), published by BirdWatch Ireland and the RSPB NI, is a list of priority bird species for conservation action on the island of Ireland. The BoCCI lists birds which breed and/or winter in Ireland and classifies them into three separate lists; Red, Amber and Green; based on the conservation status of the bird and hence their conservation priority. Birds on the Red List are those of highest conservation concern, Amber List are of medium conservation concern and Green List are not considered threatened. The BirdWatch Ireland website⁸ was accessed for information on birds of conservation concern.
- 5.26 All bird species are protected under the Wildlife Acts 1976 – 2018 but for the purposes of this report only records of species within the last 10 years that are Red or Amber-listed on BoCCI or listed on Annex 1 of the Birds Directive are included from records held by the NBDC and NPWS web searches (see **Table 5-1**).
- 5.27 The conservation status of mammals, amphibians, reptiles, fish and protected flora within Ireland and Europe was determined using one or more of the following documents: Wildlife Acts (1976 - 2012), the Red List of Terrestrial Mammals (Marnell *et al.*, 2009), Ireland Red Lists No.5: Amphibians, Reptiles and Freshwater Fish (King *et al.* 2011), The Flora (Protection) Order, 2015 (S.I. No. 356 of 2015) and the EU Habitats Directive 92/43/EEC.
- 5.28 The documents reviewed to assist the preparation of this report include: the Natura Impact Statement for the project (SLR, 2022).

Field Surveys

Habitat Survey

- 5.29 The Site was visited on 18 October 2022 and a walkover survey was carried out by Victoria Molloy. The objective of the site visit was to describe and evaluate the ecological features within the Site.
- 5.30 An updated habitat survey was carried out by Jake Matthews, SLR Senior Ecologist, on 29 April 2026 and an additional site walkover was conducted on 2 June 2026. These confirmed that conditions were unchanged since October 2022. Furthermore, SLR Principal Landscape Architect Anne Merkle carried out a tree survey on 22 April 2026, during which the woodland habitat at the application site was assessed and categorised.
- 5.31 Habitats were identified and classified using 'A Guide to Habitats in Ireland' (Fossitt, 2000) during the visit. The dominant plant species present in each habitat type were recorded. Species nomenclature follows Parnell & Curtis (2012) for scientific and English names of vascular plants.
- 5.32 Incidental sightings or evidence of birds, mammals or amphibians were also noted during the habitat survey and the habitats evaluated for their suitability to support such species.

⁶ <https://www.cavancoco.ie/> (last accessed 25 May 2026)

⁷ <https://www.eplanning.ie/CavanCC/searchexact> (last accessed 25 May 2026)

⁸ <https://birdwatchireland.ie/> (last accessed 25 May 2026)

Limitations

Desk Study

5.33 Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site but have not been previously recorded. Interpretation of maps and aerial photography has been carried out using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

Field Surveys

5.34 There were no barriers to Site access and the weather was not limiting. The habitat survey was carried out in October, which is within a sub-optimal period for vegetative surveys but still within a season where most of the biodiversity of the site, fauna and flora, can be determined.

5.35 The updated site surveys undertaken in April to June 2026 were carried out in the optimal seasonal window and allowed for an up-to-date and comprehensive assessment of ecological conditions within the application site.

ASSESSMENT APPROACH

5.36 The ecological evaluation and assessment within this chapter has been undertaken with reference to relevant parts of the 2024 Guidelines for Ecological Impact Assessment in the UK and Ireland developed by the Chartered Institute of Ecology and Environmental Management (CIEEM, September 2024). Although this is recognised as current good practice for ecological assessment, the guidance itself recognises that it is not a prescription about exactly how to undertake an ecological impact assessment (EclIA); rather, they “provide guidance to practitioners for refining their own methodologies”. For the full guidance, refer to <https://cieem.net/wp-content/uploads/2018/08/EclIA-Guidelines-v1.3-Sept-2024.pdf>. The approach to impact assessment also has regard to advice set out in the EPA guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) published in 2022.

Important Ecological Features

5.37 Ecological features can be important for a variety of reasons and the rationale used to identify them is explained in the text. Importance may relate, for example, to the quality or extent of the site or habitats therein; habitat and / or species rarity; the extent to which such habitats and / or species are threatened throughout their range, or to their rate of decline.

Determining Importance

5.38 The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this case, relying on known/published accounts of distribution and rarity where available, and professional experience:

- International (European).
- National (Ireland).
- Regional (Ulster).
- County (Cavan).
- Townland (Mullymagowan).

- Local (intermediate area between Site and Townland), and
 - Site (the red line boundary of the development).
- 5.39 The above frame of reference is applied to the ecological features identified during the desk study and surveys to inform this report.
- 5.40 In assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Examples of relevant lists and criteria include species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive), species protected under the Wildlife Acts 1976 - 2020 and Birds of Conservation Concern in Ireland 4 (Gilbert *et al.* 2021).
- 5.41 The approach to impact assessment, as set out in CIEEM guidelines, only requires that ecological features (habitats, species, ecosystems and their functions/processes), that are considered to be important and potentially affected by the proposed development are carried forward to detailed assessment. It is not necessary to carry out detailed assessment of receptors that are sufficiently widespread, unthreatened and resilient to impacts from the proposed development and will remain viable and sustainable. Therefore, for the purposes of this report, only ecological features of Local importance or greater and/or subject to legal protection have been subject to detailed assessment.

Impact Assessment

- 5.42 Where appropriate the impact assessment process involves the following steps:
- identifying and characterising potential impacts.
 - incorporating measures to avoid and mitigate (reduce) these impacts;
 - assessing the significance of any residual effects after mitigation;
 - identifying appropriate compensation measures to offset significant residual effects (if required); and
 - identifying opportunities for ecological enhancement.
- 5.43 When describing impacts, reference has been made to the following characteristics, as appropriate:
- Positive or negative;
 - Extent;
 - Magnitude;
 - Duration;
 - Timing;
 - Frequency; and
 - Reversibility.
- 5.44 The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action, e.g. the physical loss of habitat occupied by a species during the construction process. Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or feature, e.g. the creation of roads which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of wet grassland.

5.45 Consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance:

- Habitats – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.
- Species – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

Significant Effects

5.46 The 2024 CIEEM guidance sets out information which describes the concept of ecological significance. Significant effects are qualified with reference to an appropriate geographic scale, and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

5.47 A significant effect, for the purposes of EclA, is defined as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local.

5.48 The nature of the identified effects on each assessed feature is characterised. This is considered, along with available research, professional judgement about the sensitivity of the feature affected, and professional judgement about how the impact is likely to affect the site, habitat, or population's structure and continued function. Where it is concluded that an effect would be likely to reduce the importance of an assessed feature, it is described as significant. The degree of significance of the effect takes into account the geographic context of the feature's importance and the degree to which its interest is judged to be affected.

Cumulative Effects

5.49 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

5.50 Other plans and projects that should be considered when establishing cumulative effects are:

- proposals for which consent has been applied but which are awaiting determination;
- projects which have been granted consent, but which have not yet been started or which have been started but are not yet completed (i.e. under construction);
- proposals which have been refused permission, but which are subject to appeal, and the appeal is undetermined;
- constructed developments whose full environmental effects are not yet felt and therefore cannot be accounted for in the baseline; or
- developments specifically referenced in a National Policy Statement, a National Plan or a Local Plan.

Avoidance, Mitigation, Compensation & Enhancement

- 5.51 Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied, residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement.
- 5.52 It is important to clearly differentiate between avoidance mitigation, compensation and enhancement and these terms are defined here as follows:
- Avoidance is used where an impact has been avoided, e.g. through changes in scheme design;
 - Mitigation is used to refer to measures to reduce or remedy a specific negative impact in situ;
 - Compensation describes measures taken to offset residual effects, i.e. where mitigation in situ is not possible; and
 - Enhancement is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

BASELINE ECOLOGICAL CONDITIONS

- 5.53 This section sets out the baseline conditions for the ecological features considered within the Site using the findings of the desk study and field survey.

Sites Designated for Nature Conservation

- 5.54 Sites which have been designated for nature conservation are discussed in this section. These designations may include; Natura 2000 sites, Natural Heritage Areas, National Parks, Nature Reserves, Wildfowl Sanctuaries and Ramsar Sites.
- 5.55 The proposed development area is not within or adjacent to any site designated for nature conservation or subject to any nature conservation designations (**Figure 5-1**).

Natura 2000 Sites

- 5.56 There are no Natura 200 Sites within the Site. The nearest Natura 2000 sites are Lough Oughter and Associated Loughs SAC [000007] c. 14.3 km northwest of the Site at the closest point when measured in a straight line, Lough Oughter Complex SPA [4049] 14.5 km northwest and Lough Sheelin SPA [004065] c. 14.6km southwest of the Site.
- 5.57 These Natura 2000 sites are not directly connected via ecological features such as hedgerows or treelines and are sufficiently distant from the site to not be affected by dust or noise from the project construction or operational phases. However, as there is a potential for surface and groundwater connections between Lough Oughter and Associated Loughs SAC and Lough Oughter Complex SPA a stage 2 Appropriate Assessment was conducted and a Natura Impact Statement (NIS) was prepared.
- 5.58 The conclusion of the NIS determined that, based on the best available scientific information, and considering the project with mitigation measures, the extension of the quarry area will not undermine the conservation objectives for Lough Oughter and Associated Loughs SAC and

Lough Oughter Complex SPA, either alone or in-combination with other projects or plans. Therefore, Natura 2000 sites are excluded from any further consideration in this report.

Proposed Natural Heritage Areas / Natural Heritage Areas

- 5.59 There are no Natural Heritage Areas (NHA) or proposed Natural Heritage Areas (pNHA) located within a zone of influence for the project. The nearest NHA/pNHA is Lough Ramor (000008), located approximately 12.9 km southeast of the Site.
- 5.60 Therefore, proposed Natural Heritage Areas/Natural Heritage Areas are scoped out and excluded from any further consideration in this report.

Rare and Protected Flora and Fauna

- 5.61 The NBDC database was searched for records within the 2 km grid squares H50F and N59J within which the Site is located. The records returned are of varying ages so for the purposes of preparing this report only the relevant records dated within the last 10 years, are listed in **Table 5-1** below.
- 5.62 The absence of recent (within 15 years) records of species from the NBDC database does not necessarily imply that a species does not occur within the search area rather it has not formally been recorded as present. Similarly, the presence of a record for a protected species within the 2 km grid squares does not mean that the species is present within the Site.

Field Survey

- 5.63 The habitats and species recorded within the application site are described, classified and evaluated in this section of the report, and described further in the sections below.

Habitats

- 5.64 Habitats present within the Site, as recorded during the walkover survey, are described in this section. Habitat classification follows that of '*A Guide to Habitats in Ireland*' (Fossitt, 2000). A habitat map for the site is provided as **Figure 5-2** at the end of this report.

Active Quarry Site (ED1/ED2/ED3/ED4)

- 5.65 The existing quarry is located to the southeast of the Site. This area consists of a mosaic of disturbed ground habitats including exposed sand, gravel, or till (ED1), spoil and bare ground (ED2), recolonising bare ground (ED3, see **Plate 1**), and active quarries and mines (ED4). This area also includes stockpiles of extracted material.
- 5.66 Areas with recolonising vegetation are dominated by ruderals such as yarrow *Achillea millefolium*, dandelions *Taraxacum* spp., docks *Rumex* spp., red clover *Trifolium pratense*, and coltsfoot *Tussilago farfara*. Occasional grasses are also present including *Agrostis* sp., cocksfoot *Dactylis glomerata*, and crested dogs-tail *Cynosurus cristatus*. Other species also include bryophytes and immature willows *Salix* sp.).

Improved Agricultural Grassland (GA1)

- 5.67 Patches of improved agricultural grassland are dispersed throughout the Site. This habitat transitions into neutral and calcareous grassland (GS1) in the south of the site and into wet grassland (GS4) in the north and west of the Site (**Plate 3**).
- 5.68 The improved agricultural grassland on-site is dominated by grasses which are currently being grazed to a short sward by livestock. Other, non-grass species include docks *Rumex* spp., selfheal *Prunella vulgaris*, thistles *Cirsium* spp., buttercups *Ranunculus* spp., white clover

Trifolium repens, and red clover *Trifolium pratense*. Occasional rushes *Juncus* sp. are also present in the transitional areas between agricultural grassland and wet grassland (GS4).

Neutral and Calcareous Grassland (GS1)

- 5.69 An area of neutral and calcareous grassland is located to the south of the site. This is continuous with the improved agricultural grassland and can be accessed by the livestock on-site. However, this area appears to be less intensively grazed and has a wider variety of flora species. The dominant grass species are *Agrostis* sp., cocksfoot *Dactylis glomerata*, and crested dogs-tail. Perennial ryegrass *Lolium perenne* is also present, but not dominant (see **Plate 2**).
- 5.70 Other species include docks *Rumex* spp., selfheal *Prunella vulgaris*, thistles *Cirsium* spp., buttercups *Ranunculus* spp., white clover, red clover, common ragwort *Jacobaea vulgaris*, common daisy *Bellis perennis*, plantains *Plantago* spp., and yarrow.

Wet Grassland (GS4)

- 5.71 The agricultural grassland (GA1) transitions into wet grassland to the north and west of the site. This wet grassland is species-poor and is grazed by the livestock on-site. Rushes *Juncus* spp. dominate these patches of wet grassland. Other flora species present are *Agrostis* sp., crested dogs-tail, and buttercups *Ranunculus* spp. (**Plate 4**). The soil is typically wet, becoming more waterlogged in close proximity to the drainage ditch (FW4) which runs along the western site boundary.

Scrub (WS1)

- 5.72 A patch of mixed scrub is located adjacent to the southern woodland habitat on-site. Another, smaller patch is also located at the north of site, containing a similar flora species assemblage. Gorse *Ulex* sp., bramble *Rubus fruticosus* agg., and bracken *Pteridium aquilinum* are the dominant species found within the scrub (**Plate 5**). Other species include hawthorn *Crataegus monogyna*, common nettle *Urtica dioica* and thistles *Cirsium* spp..

(Mixed) Broadleaved Woodland (WD1)

- 5.73 There are two patches of broadleaved woodland on-site both of which contain a mixture of trees and scrubs, many of which are under 1.5m tall. The southern patch of woodland is less mature, with few trees at a height of more than 5m and a mostly dense scrub understorey. The northern patch of woodland is more mature with a clear understorey and more diverse field layer (**Plate 6**). Tree species within these woodlands include ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus*, willows *Salix* spp., and hazel *Corylus avellana*. Field and ground layer species include hawthorn *Crataegus monogyna*, gorse *Ulex europaeus*, blackthorn *Prunus spinosa*, bramble, ivy *Hedera helix*, herb Robert *Geranium robertianum*, buttercups, deer fern *Blechnum spicant*, *Rosa* spp., and common tormentil *Potentilla anglica*.

Hedgerows (WL1)

- 5.74 A line of hedgerow associate with the small watercourse along the north-eastern boundary is located along the southern site boundary and between the field of dry calcareous and neutral grassland (GS1) and the southern-most patch of agricultural grassland (GA1) (**Plate 7**). The species assemblage within this hedgerow is dominated by multi-stemmed and bushy willow with scattered other species and a few tall trees including ash, hawthorn and hazel similar to that of the patches of scrub on-site.).

Treelines (WL2)

- 5.75 Two treelines are found on-site. They are found along the south-western field boundary of the site. These treelines are dominated by ash and sycamore with other species including

hawthorn, and blackthorn. Ivy is found growing along some of the larger trees within the reeline (Plate 8).

Drainage Ditch (FW4)

5.76 A drainage ditch with running water is found along the western and north-western site boundary (Plate 9). The water flows in a northerly direction, exiting the site at its northernmost point. The banks of the ditch are heavily vegetated by grasses and/or scrub species. This drainage ditch connects to the Mullymagowan Stream⁹ (EPA Code: 36-1263) at the northern site boundary where it exits the Site.

Species

Rare and Protected Species

5.77 The NBDC database was searched for records of rare and/or protected species from the 2 km grid squares H50F and N59J within which the Site is located. The records of rare and/or protected species are presented in Table 5-1 below.

Table 5-1
Rare and/or Protected Species Recorded Within 2 km grid squares H50F and N59J

Species	Date of Last Record	No. of Records	Conservation Status	Dataset
Smooth Newt <i>Lissotriton vulgaris</i>	29/06/2016	1	Protected Species: Wildlife Acts	Amphibians and reptiles of Ireland

Protected Flora

5.78 No protected flora species were noted on-site during the field survey.

Amphibians

5.79 Common frog *Rana temporaria* and Smooth newt *Lissotriton vulgaris* are protected under the Wildlife Acts 1976 as amended. Species protected under the Wildlife Act are those listed on Schedule 5. Since the publication of the Wildlife Act 1976, the list of Schedule 5 species has been extended through the publication of Wildlife Act 1976 (Protection of Wild Animals) Regulations in 1980 and 1990. Common frog and smooth newt were added to the Wildlife Act 1976 as amended by regulation made in 1982/1980.

5.80 Two common frogs were observed near the drainage ditch during the April/May 2026 survey but there was no evidence of breeding although suitable breeding habitat exists on Site.

5.81 While suitable habitat for smooth newt is present within the wet drainage ditch to the north of the Site, no evidence of this species was recorded during the field survey. These drainage ditches are located within the 20m buffer zone along the edge of the proposed extraction area and, therefore, common frog and smooth newts will not be directly impacted by the proposed development.

5.82 The previous planning permission (P. Ref. 12/101) was subject to water discharge licence S/W005/11, granted on 08/02/2012. The proposed development will also be controlled by this discharge licence, whose conditions prevent the emission of untreated effluent into the watercourses. Therefore, there is little to no potential for indirect impacts on amphibian habitats as a result of the proposed quarry extension.

⁹ Locally known as the Mullymagowan Stream but referenced as the Corraneary Stream on EPA map viewer

5.83 As such, the potential for impacts on amphibians can be ruled out in this report.

Birds

5.84 Sand martin nests were located in aggregate stockpiles within three locations on the active quarry habitat during the habitat survey (Plate 10). The locations of these sand martin nests are shown in Figure 5-3. Point #1 contains approximately 106 potential nest holes, point #2 contains approximately 30 potential nest holes, and point #3 contains approximately 25 potential nest holes. Sand martins are Amber-listed on the BoCCI list.

5.85 The bird assemblage of the Site would be evaluated as important at the Local level.

5.86 Since the field survey of October 2022 the stockpile holding the sand martin nest site 1 has been removed. However, there is a large sand stockpile just outside the application site but still within the main quarry landholding, which could be used as an alternative sand martin nesting site (see Figure 5-3). There are no plans to remove this sand stockpile as part of the proposed project.

5.87 The updated breeding bird survey of May 2026 did not find any sand martin nesting in the three old sand piles observed during the 2022 survey (Plate 10) as the piles had been removed in the intervening period. However, the 2026 survey did find sand martins actively nesting in the large stockpile in the south-east corner of the Site (Plate 11). This stockpile is located at 53.943694, -7.199377 and is shown in Figure 5-3.

Mammals

Bats

5.88 There are no records in the NBDC of any bat species from the 2 km grid squares in which the Site is located.

5.89 Habitats within the site were evaluated for bat foraging, commuting and roosting suitability using criteria developed by the BCT (See Appendix 5-B).

5.90 Trees within the proposed site were also evaluated for their potential to support roosting bats. There are trees of sufficient size and age to contain potential roost features (PRFs), but no PRFs could be seen from the ground. Trees within the Site were evaluated as having negligible suitability to support roosting bats.

5.91 The woodland and scrub habitats within the Site are considered to be moderately suitable for foraging and commuting bats. There is connectivity between these habitats and the wider landscape via hedgerows and treelines.

5.92 Two bat surveys of the Site were conducted in late-April/May and June 2026. Each survey comprised a walked transect survey and a static detector survey where two automated, full spectrum static bat detectors were deployed on the Site for a period of seven days.

5.93 The full results of the bat surveys are found in the bat report in Appendix 5-C. All of the transect and static detector surveys found very low levels of bat activity. The dominant bat species recorded were common pipistrelle *Pipistrellus pipistrellus* and soprano pipistrelle *Pipistrellus pygmaeus*, with both species being recorded in low numbers in both the late-April/May and June 2026 surveys. There were very occasional detections of Leisler's bat *Nyctalus leisleri*, Daubenton's bat *Myotis daubentonii* and whiskered bat *Myotis mystacinus* recorded in the late-April/May and June 2026 static surveys but none of these species were recorded during either of the walked transect surveys.

5.94 Based on the findings from the two bat surveys it can be assessed that there are no potential bat roosts on the Site and the bat commuting and foraging activity across the area is considered low with a limited number of bat species utilising the Site.

5.95 Therefore, the bat assemblage of the Site would be evaluated as important at the Local level.

Other Mammals

5.96 There were no other mammal signs noted within the Site and other mammals are excluded from further consideration in this report.

Invasive Species

5.97 The NBDC database was searched for records of invasive species within the 2 km grid squares H50F and N59J within which the Site is located. One record, dated within the last 5 years, were returned for the following plant species listed under the Third Schedule of the EC Birds and Natural Habitats Regulations 2011:

- Salmonberry *Rubus spectabilis*.

5.98 No plant or animal invasive species listed under the Third Schedule of the Habitats Directive and subject to restrictions under Regulations 49 and 50 were observed during the ecological site walkover in October 2022. Invasive species are scoped out of further consideration in this report.

Summary of Important Ecological Features

5.99 Important ecological features to be carried forward for detailed assessment are summarised below. The importance of these features is summarised along with their legal status.

Birds

5.100 Sand martins are Amber-listed on the BoCCI list. The bird assemblage of the Site would be evaluated as important at the Local level.

Bats

5.101 Bats are protected under the Wildlife Acts 1976 as amended, and the Habitats Directive. The bat assemblage of the Site would be evaluated as important at the Local level.

Woodland

5.102 A Request for Further Information made by An Coimisiún Pleanála (dated 16 February 2026) specified that a tree survey and schedule be conducted, and that the impact of the proposed removal of trees on woodland habitat associated bats be provided.

ASSESSMENT OF EFFECTS AND MITIGATION MEASURES

5.103 This section sets out the potential impacts and their effects on important ecological features. The information available from the desk study and fieldwork has been used to identify impacts and the significant effects including positive, negative, direct, indirect and cumulative effects. The following design principles and “designed-in” mitigation have informed the assessment of impacts.

- The existing operations in the applicant’s wider landholding are currently regulated by conditions attached to the existing planning permission: P. Ref. 07/827.
- P&S Civil Works Ltd. has and will continue to implement / evaluate a full range of dust mitigation measures at the existing quarry in accordance with the DoEHLG (2004) Quarries and Ancillary Activities: Guidelines for Planning Authorities, and the EPA (2006) Environmental Management Guidelines for Environmental Management in the Extractive Industry, refer to Chapter 8 of this EIAR.
- P&S Civil Works Ltd. has and will continue to implement / evaluate a full range of noise mitigation measures at the quarry in accordance with the DoEHLG (2004) Quarries and Ancillary Activities: Guidelines for Planning Authorities, and the EPA (2006) Environmental Management Guidelines for Environmental Management in the Extractive Industry, refer to Chapter 10 of this EIAR.
- The quarry is, and the proposed extension will be subject to water discharge licence SS/W005/11, granted on 08/02/2012. The conditions laid out in this discharge licence prevent the emission of untreated effluent into the watercourses.

5.104 Taking the above into account, the principal potential impacts of the proposed development are outlined in the following sections.

Do Nothing Impact

5.105 In the absence of the proposed development, it is likely that the site would continue to be semi-natural grasslands and the areas of woodland and scrub would continue to take over the site over time.

Potential Impacts and Effects

Bats

Potential Impacts

5.106 The proposed quarry extension will result in the loss of potential bat foraging and commuting habitat in the form of scrub and woodland removal. However, it has been established that the level of bat activity across the Site is low and only the common bat species of common pipistrelle and soprano pipistrelle utilising the Site with any frequency. The bat surveys found that there were no trees with potential roost features and so the proposed quarry extension will not result in the loss of the woodland habitat and there will be no significant effect on the overall bat population on the Site or in the surrounding areas.

5.107 The proposed development has the potential to interfere with bat populations and bat habitat bordering the proposed development Site through an increase in the use of artificial lighting during the construction and operational phase.

Proposed Mitigation Measures

5.108 The following mitigation measures are proposed:

- Prior to the removal of any woodland within the site, a final pre-commencement survey shall be undertaken by an ecologist to ensure that no new PRFs have established.
- All tree / shrub removal will be carried out by suitably trained personnel, to ensure the appropriate and lawful removal of vegetation is undertaken, using appropriate equipment for the task (e.g. chainsaws).
- All woody vegetation (i.e. trees and shrubs), along the site boundaries and within the application area, but outside the proposed extraction areas, will be retained.
- The loss of trees and shrubs will be partially compensated by the planting of ca. 1,315 m² of a native woodland mix on the buffer area (i.e. currently pastureland) between the local road to the west of the site and the western boundary of the extraction area. These planting works form part of the landscape and restoration measures for the proposed development, as was detailed on EIAR Figure 2-4 (Landscape and Restoration Plan).
- The retention of the boundary habitats and the compensatory planting will act to retain bat foraging and commuting corridors along the boundaries of the Site to ensure connectivity to similar habitats in the areas surrounding the quarry. This will ensure there is no significant effect on the local bat population from the removal of vegetation in the quarry extension area.
- All external lighting to be installed, including facilitating nighttime working or security lighting, on the site shall be sensitive to the presence of bats in the area. Lighting of the site during construction will be designed in accordance with the following guidance:
 - Guidance Notes for the Reduction of Obtrusive Light GN01/20 (Institute of Lighting Professionals, 2021)
 - Bats & Lighting - Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, December 2010)
 - Guidance Note 8 Bats and artificial lighting (Institute of Lighting Professionals, 2018)

5.109 All lighting shall be LED and controlled with photo-cells and time clocks.

5.110 During operational phase all artificial lighting should be directed into the Site and away from the tree lines bordering the Site using cowls, shields, or louvers to reduce light spillage. The boundary tree lines and hedge rows will therefore be rendered "dark zones" (<1 lux, as is typical during a moonlit night) to facilitate commuting and foraging bats (Bat Conservation Trust, 2024).

5.111 Light emitting diodes (LEDs) will be installed to emit <3 lux (Bat Conservation Ireland, 2011). These emit little or no UV which attracts significantly lower numbers of invertebrates and, therefore, are less impactful on bat species.

Significance of Residual Effects

5.112 There will be no significant residual effect on bats as a result of the construction or operational phases of the proposed development.

Birds

Potential Impacts

5.113 The proposed development will result in the temporary loss of hedgerows and trees within the development site. This represents loss of potential nesting habitat for commonly occurring bird species.

5.114 In addition, the removal of some of temporary aggregate stockpiles within the Site will result in the loss of potential sand martin nesting sites.

Proposed Mitigation Measures

5.115 All woody vegetation (i.e. trees and shrubs), along the site boundaries and within the application area, but outside the proposed extraction areas, will be retained and, as mentioned, there will be compensation planting of ca. 1,315 m² of a native woodland mix. This will retain ecological corridors along the boundaries of the Site to the surrounding habitats and will provide suitable bird nesting and foraging habitat.

5.116 Sand martin were noted nesting in a sand pile in the south-east of the Site. This is in a quiet area of the Site and this if this sand pile is retained it can continue to accommodate breeding sand martins.

5.117 If this pile has to be removed it should not be done during the bird breeding season, 1st March to 31st August if sand martins are nesting, and an alternative pile should be created in an undisturbed area of the Site for future sand martin nesting.

Significance of Residual Effects

5.118 The loss of vegetation within the Site will not result in a significant residual effect on breeding birds. However, the removal of suitable sand stockpiles could result in the loss of potential breeding habitat for sand martins, but the retention and/or creation of other piles will compensate for any loss.

WoodlandPotential Impacts

5.119 A total area of ca. 12,370m² of dense woody vegetation is to be removed to cater for the proposed extraction area, including in the region of 25 tall / mature sycamore and ash. The tree survey dated 19 May 2026 indicates that the majority of this area has developed naturally due to a lack of management and possibly due to low levels of cattle grazing currently taking place.

5.120 The tree survey confirms that the vast majority of the trees to be removed are of low quality. Of the remaining trees, the quality is assessed as moderate because of their collective nature, which attributes them a higher value over their individual presentation. Of those trees that are proposed to be removed from the northern part of the site, these are dominated by hawthorn, blackthorn and gorse. Some larger sycamore and ash trees are present in the north-western part of the site, although there are signs of ash dieback present. Within the western part of the application site, there is a line of 4 mature sycamore trees and 2 ash (also showing signs of ash dieback present). Of these, the sycamore tree closest to the site boundary can be retained,

5.121 No bat potential roost features have been identified in any of the proposed trees to be removed.

Proposed Mitigation Measures

5.122 All woody vegetation, along the site boundaries and outside the proposed extraction areas, will be retained and there will be compensation planting of ca. 1,315 m² of a native woodland mix. This will retain ecological corridors along the boundaries of the Site to the surrounding habitats and will provide suitable habitat for nesting and foraging birds and commuting and foraging bats..

Significance of Residual Effects

5.123 The loss of woodland vegetation within the Site will not result in a significant residual effect on the overall biodiversity of the Site

Cumulative Effects

- 5.124 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a project results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects (CIEEM, 2018).
- 5.125 The following plans were reviewed for strategies and objectives that may act in-combination with the project:
- Cavan County Development Plan 2022-2028
- 5.126 There are no strategies or objectives in the Cavan County Development Plan 2022-2028 that are likely to result in significant effects when considered in-combination with the proposed quarry extension.
- 5.127 Cavan County Council planning portal was accessed to examine recent planning applications within 5 years in the vicinity of the Site for potential to act in-combination with the project. The recent planning applications found in the vicinity of the Site consist of small-scale domestic and agricultural construction projects. The proposed developments in the vicinity of the Site are sufficiently small-scale and distant from the Site. Therefore, there is no potential for cumulative or in-combination effects with these plans and projects.

Proposed Monitoring

- 5.128 The proposed development is not likely to result in significant residual effects; potentially the only monitoring required will be the use of aggregate stockpile by breeding sand martins. Should sand martins start to build nests in this or any other stockpiles then they can not be removed or touched during the birdbreeding season (1st March to 31st August).

CONCLUSIONS

- 5.129 The habitats present within the Site are commonly occurring throughout Ireland or have limited value for biodiversity and are evaluated to be either important at the Site level or not important.
- 5.130 There is a very low level of bat activity on the Site so it can be concluded that it does not support a significant bat population. The removal of vegetation will not have a significant effect on the overall bat population in the area, and the compensation planting will act to retain bat commuting and foraging links to the surrounding areas.
- 5.131 There have been breeding sand martins on the Site, sand stockpiles should be retained or created to allow them to breed each year.
- 5.132 The proposed development will not result in any significant effects on the biodiversity of the Site and provided the recommended best practice and mitigation is implemented it is considered that development will not result in any residual significant effects on the biodiversity of the Site.

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PLATES

Plates 1 – 10



Plate 1: Recolonising Bare Ground (ED3)



Plate 2: Dry Calcareous and Neutral Grassland (GS1)



Plate 3: Improved Agricultural Grassland (GA1)



Plate 4: Wet Grassland (GS4)



Plate 5: Scrub (WS1)



Plate 6: Broadleaved Woodland (WD1)



Plate 7: Hedgerow (WL1)



Plate 8: Treeline (WL2)



Plate 9: Drainage Ditch (FW4)



Plate 10: Example of old Sand Martin nests on Site – Photographed at Point #3 on Figure 5-3



Plate 11: Sand Martin nests in south-east corner of the Site , June 2026



FIGURES

Figure 5-1: Natura 2000 Sites within 2km of the Site

Figure 5-2: Habitat Map

Figure 5-3: Sand Martin Nest Sites (Updated 2026)

NOTES

1. Base Mapping: OpenStreetMap ©
(www.openstreetmap.org/copyright)
2. CYAL50316488
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LEGEND

- 15km Radius Buffer
- National Heritage Area (NHA)
- Potential National Heritage Areas
- Site Outline
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)



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ENVIRONMENTAL IMPACT ASSESSMENT REPORT

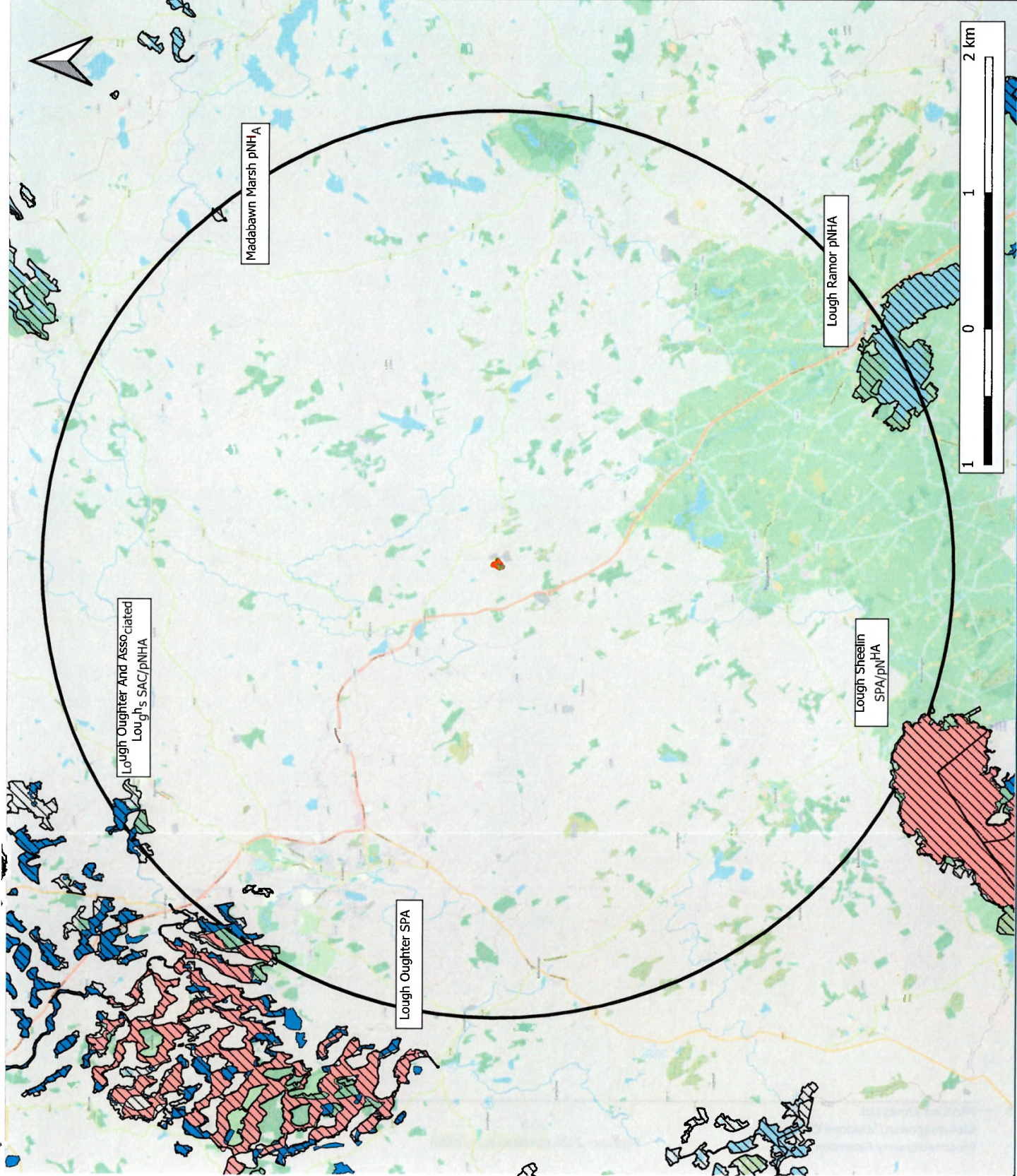
QUARRY AT MULLYMAGOWAN,
STRADONE, CO. CAVAN

DESIGNATED SITES MAP

FIGURE 5-1

Scale
1:50000 @ A3

Date
FEBRUARY 2023



NOTES

1. Base Mapping: OpenStreetMap © (www.openstreetmap.org/copyright)
2. CYAL5316488
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LEGEND

ED2/ED3/ED4 - Spoil and bare ground, re colonising bare ground, active quarries and mines

FW4 - Drainage ditches

GA1 - Improved agricultural grassland

GS1 - Dry calcareous and neutral grassland

GS4 - Wet grassland

Potential Sand Martin Nests

Stradone site outline

WD1 - (Mixed) broadleaved woodland

WL1 - Hedgerows

WL2 - Treelines

WS1 - Scrub

ED2/ED3/ED4 - Spoil and bare ground, re colonising bare ground, active quarries and mines

FW4 - Drainage ditches

GA1 - Improved agricultural grassland

GS1 - Dry calcareous and neutral grassland

GS4 - Wet grassland

Potential Sand Martin Nests

Stradone site outline

WD1 - (Mixed) broadleaved woodland

WL1 - Hedgerows

WL2 - Treelines

WS1 - Scrub

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ENVIRONMENTAL IMPACT ASSESSMENT REPORT

QUARRY AT MULLYMAGOWAN, STRADONE, CO. CAVAN

HABITAT MAP

FIGURE 5-2

Scale 1:50000 @ A3

Date FEBRUARY 2023

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NOTES

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- 2. CYAL50316488 © Ordnance Survey Ireland/Government of Ireland.

LEGEND

- Sand Martin Nesting Site - Observed 2026 (Yellow dot)
- Sand Martin Nests - Observed 2022 (Green dot)
- Site Outline (Red outline)



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ENVIRONMENTAL IMPACT ASSESSMENT REPORT
**QUARRY AT MULLYMAGOWAN,
STRADONE, CO. CAVAN**
SAND MARTIN NESTS LOCATION MAP

FIGURE 5-3

Scale 1:50000 @ A3
Date **JUNE 2026 UP-DATE**

APPENDICES

Appendix 5-A: Relevant Legislation and Planning Policy

Appendix 5-B: Guidelines for assessing the potential suitability of proposed development sites for bats

Appendix 5-C: Bat Report (2026 Surveys)

APPENDIX 5-A: RELEVANT LEGISLATION AND PLANNING POLICY

Relevant Legislation¹⁰

EIA Directive

The EIA Directive, Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment as amended by Council Directive 97/11/EC of 3 March 1997, Directive 2003/35/EC of 26 May 2003 and Directive 2009/31/EC of 23 April 2009, now codified in Directive 2011/92/EU of 13 December 2011 and amended in Directive 2014/52/EU of 16 April 2014, is designed to ensure that projects likely to have significant effects on the environment are subject to a comprehensive assessment of environmental effects prior to development consent being given. The EIA Directive was first transposed into Irish law by the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989) which amended the Local Government (Planning and Development) Act, 1963 (and other legislation) to provide for environmental impact assessment.

Habitats and Birds Directive

The Habitats Directive ensures the conservation of a wide range of rare, threatened or endemic animal and plant species. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora was adopted in 1992 and aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. It forms the cornerstone of Europe's nature conservation policy with the Birds Directive and establishes the EU wide Natura 2000 ecological network of protected areas, safeguarded against potentially damaging developments.

The Natura 2000 network of protected areas is known as Special Areas of Conservation (SAC) and Special Protection Areas (SPA). In general terms, they are considered to be of exceptional importance in terms of rare, endangered or vulnerable habitats and species within the European Community. The requirements of the Habitats Directive have been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011 [S.I. No. 477/2011]. This legislation affords protection to both Special Protection Areas and Special Areas of Conservation.

Special Areas of Conservation (SAC) are designated under the Conservation of Natural Habitats and of Wild Fauna and Flora Directive 92/43/EEC (Habitats Directive) which is transposed into Irish law by the EC (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). Special Protection Areas (SPA) are classified under the Birds Directive (2009/147/EC on the Conservation of Wild Birds). Article 6(3) of the Habitats Directive requires an 'appropriate assessment' to be undertaken for any plan or project that is likely to have a significant effect on the conservation objectives of a Natura 2000 site. An 'appropriate assessment' is an evaluation of the potential impacts of a plan or project on the integrity of a Natura 2000 site, and the incorporation, where necessary, of measures to mitigate or avoid negative effects.

National Legislation

Flora and fauna in Ireland are protected at a national level by the Wildlife Acts 1976 to 2018 and the Floral (Protection) Order 2015. Natural Heritage Areas (NHA) are areas that are considered to be important for the habitats present or for the species of plants and animals supported by those habitats. Under the Wildlife Amendment Act 2000, NHAs are legally protected from damage from the date they were formally proposed for designation. Section 19(1) of the Act states that 'Where there is a subsisting natural heritage area order in respect of any land, no person shall carry out, or cause or permit to be carried out, on that land any works specified in the order or any works which are liable to destroy or to significantly alter, damage or interfere with the features by reason of which the designation order was made'.

¹⁰ Please note that the summary of relevant legislation provided here is intended for general guidance only. The original legislation should be consulted for definitive information.

In addition, a list of proposed NHAs (pNHAs) was published in 1995 but to date these have not had their status confirmed. Prior to statutory designation, pNHAs are subject to limited protection under various agri-environment and forestry schemes and under local authority planning strategies such as County Development Plans.

Relevant Planning Policy

The planning policy and legislation that is relevant to the development.

Cavan County Development Plan 2022-2028

The relevant local planning policies have been extracted from Volume 1 of the Cavan County Development Plan 2022-2028. These policies are specific to “*Chapter 10: Natural Heritage*” and are concerned with the policies and objectives relating to biodiversity.

Natural Heritage Development Objectives

It is a development objective of Cavan County Council to:

NH1 Conserve, protect and manage the County’s natural heritage assets for future generations while encouraging appreciation, understanding and enjoyment of the amenity value for the present generation.

NH2 Maximise the social, economic and environmental benefits that may be derived from the conservation and management of Cavan’s Natural Heritage and green infrastructure.

NH3 Support the implementation of relevant actions in the National Biodiversity Plan, the All Ireland Pollinator Plan and the National Peatlands Strategy.

NH4 Implement, in partnership with Cavan County Heritage Forum, relevant stakeholders and the wider community, Cavan County Heritage and Biodiversity Plans and any revisions thereof.

NH5 Integrate biodiversity consideration into all Cavan County Council activities through the County Biodiversity Action Plan process.

NH6 Ensure the protection of species of flora and fauna afforded legal protection under Irish and European Legislation.

NH7 Assess the impact on biodiversity of proposals for large developments, particularly those on greenfield sites, or in environmentally sensitive areas. Such developments must include measures for the enhancement and protection of biodiversity.

NH8 Promote the conservation of biodiversity outside of designated areas, including features such as wetlands, woodlands, hedgerows and uplands.

NH9 Working in close partnership with the Heritage Council, National Parks and Wildlife Service, Fisheries Boards, Fáilte Ireland, Office of Public Works, Geological Survey Ireland to deliver on the strategic actions of the current Cavan County Heritage Action Plan and the Cavan County Action Biodiversity Plan or subsequent plans adopted within the lifetime of the development plan.

Development Objectives for Designated Sites

It is a development objective of Cavan County Council to:

NHDS1 Protect and conserve Special Areas of Conservation, Special Protection Areas, Natural Heritage Areas and proposed Natural Heritage Areas.

NHDS 2 Ensure an Appropriate Assessment is carried out in respect of any plan or project not directly connected with or necessary for the management of the site but likely to have a significant effect on the integrity of a European Site(s), either individually or in-combination with other plans or projects, in view of the site’s conservation objectives.

NHDS3 Ensure that any plan or project that could have an adverse impact on a NHA, pNHA, SAC, SPA (either by themselves or in combination with other plans and projects) or upon the conservation objectives of the site or would result in the deterioration of any habitat or any species reliant on that habitat will be subject to the requirements of Article 6(3) and Article 6(4) of the Habitats Directive.

NHDS4 Ensure an Appropriate Assessment (AA) in accordance with Article 6(3) and Article 6(4) of the Habitats Directive, and in accordance with the Department of the Environment, Heritage and Local Government

Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities, 2009 and relevant EPA and European Commission guidance documents, is carried out in respect of any Plan or Project likely to have significant effect on a Natura 2000 site(s), either individually or in combination.

NHDS5 Require an ecological appraisal for development not directly connected with or necessary to the management of Natura Sites, or a proposed Natura Site and which are likely to have significant effects on that site either individually or cumulatively.

NHDS6 Support the development of a Strategic Habitat Map for the Cuilcagh Lakelands UNESCO Global Geopark in consultation with National Parks and Wildlife Service and relevant stakeholders.

NHDS7 Promote the maintenance and as appropriate, achievement of favourable conservation status of habitats and species and to improve the ecological coherence of the Natura 2000 network, by maintaining and where appropriate, developing features in the landscape which are of major importance for wild fauna and flora.

NHDS8 Ensure that new development proposals affecting designated sites have regard to the sensitivities identified in the SEA Environmental Report prepared in respect of this plan.

NHDS9 Have regard to the views of the National Parks and Wildlife Service in respect of proposed development where such development may have an impact on a designated National or European site or proposed site for designation.

NHDS10 Consult with National Parks and Wildlife Service (NPWS) in regard to any developments (those requiring planning permission and those not requiring planning permission) which the council proposes to carry out within pNHAs, NHAs, SACs, SACs, SPAs, SPAs and other important ecological sites.

NHDS11 Maintain the conservation value of Council owned land within NHAs and pNHAs and promote the conservation value of Council owned land adjoining NHAs.

NHDS12 Continue to undertake surveys and collect data that will assist Cavan County Council in building its knowledge base and meeting its obligations under Article 6 of the Habitat Directives.

NHDS 13 Projects giving rise to adverse effects on the integrity of European sites (cumulatively, directly or indirectly) arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects shall not be permitted except as provided for in Article 6(4) of the Habitats Directive, viz there must be: (a) no alternative solution available, (b) imperative reasons of overriding public interest for the plan to proceed; and (c) adequate compensatory measures in place.

NHDS 14 Contribute towards the protection and enhancement of biodiversity and ecological connectivity where these form part of the ecological network and/or may be considered as ecological corridors or stepping stones.

Development Objectives for Non- Designated Sites

It is a development objective of Cavan County Council to:

NHND1 Support the protection of non-designated sites and acknowledge the need to protect non-designated habitats and landscapes and to conserve biological diversity.

NHND2 Conserve the existing wide range of flora, fauna and wildlife habitats in the county through the preservation of ecological corridors and networks vital to the migration, dispersal and genetic exchange of wild species. To designate County Biodiversity Sites within the lifetime of this plan and to protect the ecological integrity of these sites.

NHND3 Implement the actions of Cavan County Biodiversity Plan and any subsequent revisions in fulfilment of the requirements of the National Biodiversity Plan.

NHND4 Continue habitat mapping of the county to enable planning for the future development in a sensitive and sustainable manner and this mapping to inform the development management policy.

NHND 5 Require an Ecological Impact Assessment (EclA) for any proposed development which have a significant impact on rare, threatened and or protected species and non-designated habitats of biodiversity value.

APPENDIX 5-B - BAT CONSERVATION TRUST GUIDELINES FOR ASSESSING THE POTENTIAL SUITABILITY OF PROPOSED DEVELOPMENT SITES FOR BATS

Guidelines for assessing the potential suitability of proposed development sites for bats

Suitability	Description of Roosting Habitats	Description of Commuting and Foraging Habitats
Negligible	A building, structure, tree or other feature with negligible habitat features likely to be used by bats.	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	A building or structure with one or more potential roost features that could be used by individual bats opportunistically, but do not provide enough space, shelter, protection or appropriate conditions (for example temperature, humidity, height above ground, light levels, levels of disturbance) and/or suitable surrounding habitat to be used on a regular basis, or by larger numbers of bats. Buildings in this category are unlikely to support a maternity colony or be used by hibernating bats. A tree of sufficient size and age to contain potential roost features but with none seen from the ground, or features seen with only very limited roosting potential (i.e. some small cracks or crevices, low ivy cover).	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or un-vegetated stream, but isolated and not very well connected to the surrounding landscape by other habitat and/or features. Suitable but isolated habitat that could be used by small numbers of foraging bats.
Moderate	A building, structure, tree or other feature with one or more potential roost sites that could be used by bats due to their size, shelter, protection or appropriate conditions (for example temperature, humidity, height above ground, light levels, levels of disturbance) and surrounding habitat but unlikely to support a roost of high conservation value status. Buildings, structures and trees falling into this category would not be expected to support a maternity colony, or significant hibernation or transitory roost.	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	A building, structure, tree or other feature with one or more potential roost sites that are obviously suitable for use by large numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection or appropriate conditions (for example temperature, humidity, height above ground, light levels, levels of disturbance) and surrounding habitat. Buildings, structures and trees falling into this category may be expected to support a maternity colony, or significant hibernation or a significant transitory roost.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roost.

APPENDIX 5-C – BAT REPORT (2026 SURVEYS)



ACP RFI Item 5(b) - Bat Survey Report

Proposed Quarry Extension at Mullymagowan Townland,
Stradone, Co. Cavan (ABP-318793-24 P. Ref. 23/169)

P & S Civil Works Ltd.

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Revision: Final



Revision Record

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1 Draft	10 June 2026	Michael Bailey Jake Matthews	Jake Matthews	
Final	12 June 2026	Michael Bailey	Lynn Hassett	
	Click to enter a date.			
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	Click to enter a date.			

Basis of Report

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1.0 Introduction

1.1 Background

SLR Environmental Consulting Ireland Ltd (hereafter 'SLR') was commissioned by P&S Civil Works Ltd in February 2026 to undertake bat surveys to address Item 5(b) of a request for further information (RFI) from An Coimisiún Pleanála (ACP) in relation to the appeal concerning a proposed quarry extension at Mullymagowan Townland, Stradone, Co. Cavan. (Cavan Planning Reference 23/169; ACP Case Number ABP-318793-24).

The proposed quarry extension was previously permitted under P. Ref. 12/101 (P. Ref. 17/383) and never commenced. It is further proposed to utilise existing ancillary buildings and facilities / activities, as currently permitted by P. Ref. 07/827.

1.2 Site Description

The project site is located in the townland of Mullymagowan, Co. Cavan, approximately 4.5km south of the village of Stradone. The site comprises a number of undulating pasture fields, parts of which have become encroached by dense tree / shrub vegetation. Also included within the site is an area which was stripped and has been used for stockpiling. Some of the internal and external field boundaries are marked by a mix of hedgerows and tree lines.

It is assumed that, except for some of the treelines and hedgerows, a majority of the woody vegetation has developed naturally, due to a lack of management on the most steeply sloping / rocky sections of the site. Over the years this woody vegetation has also encroached on some of the flatter sections of the site, as is now evident, possibly due to low levels of cattle grazing.

All woody vegetation within the extraction area and some along its boundaries will have to be removed. The total area of vegetation to be removed is ca. 12,370m², including an area of 25 tall / mature sycamore and ash.

1.3 Scope of Study

The main aim of this bat report was to obtain baseline information relating to use of the Site by bats and associated levels of activity. This in turn allowed for the preparation of an update of the biodiversity chapter of the Environmental Impact Assessment (EIA) Report dated February 2023 and to provide further assessment of the utilisation of the site's habitats by bats and determine if there will be any significant impact on the local bat populations as a result of the proposed development. This report has been prepared to meet Item 5(b) of the ACP Request for Further Information which states that:

"It is noted that the proposed woodland to be removed may be use by bats (for example foraging/roosting). A detailed impact assessment on bats in accordance with best practice guidance (including additional surveys if deemed required) by a suitably qualified bat expert is required to be included in the EclA. Article 5(3)(a) of the amended Directive 2014/52/EU requires that "the developer shall ensure that the environmental impact assessment report is prepared by competent experts". Marnell et al (2022) states that bat survey reports should "present the qualifications and experience of the surveyors and authors". You are required to provide the qualifications and experience of the surveyors and authors. In the event that a derogation licence for bats is required, it is noted that the Commission is precluded from deciding on the proposal development until a Derogation for bat has been issued and confirming documentation copied to the Commission".



Specific study objectives were to:

- Confirm the presence/absence of potential bat roost features (PRFs) within the woodland habitat of the Project Site,
- Gather further information on key commuting or foraging habitat features that could be affected by the project;
- Determine the bat assemblage using the Project Site for foraging or commuting purposes; and
- Determine levels of bat activity within the Project Site and assess the potential for significant effects on the local bat population.

1.4 Relevant Legislation

1.4.1 Irish Legislation

All species of bat and their roosts are listed under Schedule 5 of the Irish Wildlife Act 1976 (as amended 2000, 2010, 2021, and 2023) and protected by law. It is an offence to harm, interfere or disturb bats or their roosts without an appropriate licence from the National Parks and Wildlife Service (NPWS).

The Wildlife Act amendment (2000) also includes protection to Natural Heritage Areas (NHAs). These are areas containing habitats or species that require legal protection from damage, which can include bats. Not all NHAs have received statutory designation, and these are termed proposed Natural Heritage Areas (pNHAs). While lacking the same level of legal protection as NHAs, pNHAs are subject to limited protection via agri-environmental planning schemes and the recognition of the ecological value of pNHAs by planning and licencing authorities.

1.4.2 EU Legislation

Under the Habitats Directive 1992 (92/43/EEC), member states of the European Union must designate Special Areas of Conservation (SACs), which form part of the EU-wide Natura 2000 protected area network. The aim of this network is to safeguard biodiversity against potentially damaging developments. SACs are designated based on the presence of habitats or species (known as 'qualifying interests' or QIs) listed under Annex I or Annex II of the Habitats Directives, respectively. The only species of bat in Ireland that is listed under Annex II of the Habitats Directives is the lesser horseshoe bat *Rhinolophus hipposideros*.

While strict protection is afforded SACs, all species of bat in Ireland also receive additional protection under Annex IV of the Habitats Directive. This prohibits the deliberate disturbance of bat species (particularly during the periods of breeding, nursing, and hibernation), as well as the deterioration and/or destruction of roosts across their entire natural range within the EU, both within and outside Natura 2000 sites.

1.4.3 Other International Legislation

Ireland has ratified two international wildlife laws pertaining to bats:

- The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, 1982). Part of this convention stipulates that all bat species and their habitats are conserved; and
- The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention, 1979). The aim of this convention was to protect migratory species (which includes some species of bats) across all European borders.



2.0 Methodology

2.1 Updated Desk Study

A desk-based study was carried out in April 2026 to gather information relating to existing records of bat species within the Site and surrounding area. This included:

- Recent satellite maps and Environmental Sensitivity Mapper to identify features of potential value to bats at the Project Site;
- The bat landscapes suitability index for the Project Site¹:
 - The index ranks landscapes from least (0) to most favourable (100) using records held by Bat Conservation Ireland (BCI) and landscape features to train a predictive model that identifies geographical areas suitable for individual bat species;
- Maps of nationally and internationally designated sites for bats within 15 km from the Project Site (EPA, 2025)²;
- The location of the Project Site in relation to the edge of bat species' known Irish ranges (NPWS, 2019)³; and
- Previous records of bats within the 10 km grid square (N59J) in which the Site is contained (NBDC, 2026)⁴.

2.2 Field Survey Methodology and Rationale

The field survey methodology was designed with reference to current bat survey guidance (Collins, 2023).

Two bat surveys were carried on the Site by experienced SLR Bat Ecologist, Jake Matthews in late-April/May and June 2026, details below.

2.2.1 Evidence of Technical Competence

This report was prepared by SLR Associate Ecologist Michael Bailey and SLR Senior Ecologist Jake Matthews. The bat surveys were carried out by SLR Senior Ecologist Jake Matthews with assistance from SLR Project Ecologist Michael James (April 2026) and SLR Graduate Ecologist Eoin Halpin (June 2026).

The bat call analysis from the walked transect and static detector surveys was analysed by SLR Project Ecologist Lorcan Kelly.

Jake Matthews MSc, BSc (Hons), ACIEEM

Jake Matthews MSc, BSc (Hons), ACIEEM is a Senior Ecologist at SLR. Jake has an MSc in Ecology and Environment Management from Liverpool Hope University and a BSc (Hons) in Wildlife Conservation from the University of Salford. He has six years' experience as a consultant ecologist and has been at SLR since 2022, having previously worked for other similar consultancies in the UK since 2019 and has worked on several large-scale infrastructure projects. Jake is experienced in bat surveys and is competent at bat identification, bat analysis and report writing.

¹ Obtained via Biodiversity Ireland <https://maps.biodiversityireland.ie/Map> [Last accessed 15/06/2026].

² Obtained via EPA map viewer <https://gis.epa.ie/EPAMaps> [Last accessed 15/06/2026].

³ Obtained via maps contained under Article 17 reporting <https://www.npws.ie/publications/article-e-17-reports/article-17-reports-2019> [Last accessed 15/06/2026].

⁴ Obtained via Biodiversity Maps <https://maps.biodiversityireland.ie/Map> [Last accessed 28/05/2026].



Michael Bailey MSc, BSc

Michael is an Associate at SLR who holds a BSc (Hons) in Biology and Ecology from the University of Ulster, and an MSc in Quantitative Conservation Biology from the University of the Witwatersrand, Johannesburg, South Africa. Michael is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Michael is an experienced consultant ecologist with over 20 years of field and research experience with mammal, bird, bat and invasive species surveys in Ireland, the UK and Africa. He has prepared Appropriate Assessments and Ecological Impact Assessments for a wide range of infrastructure, mining and extractive industry, and renewable energy projects.

Lorcan Kelly BSc

Lorcan is a Project Ecologist who holds a BSc in Science (Zoology) from University College Dublin and an MSc in Applied Ecology and Conservation from the University of East Anglia. He joined SLR in September 2023 and is a qualifying member of CIEEM. Lorcan has experience of bat surveys including night-time bat walkovers and automated static detector surveys. Lorcan is certified in bat call analysis with a certificate awarded in April 2024 by BatAbility⁵ having completed his Technician Level graded assessment (certificate ID: 04.1781).

Michael James BA (Hons)

Michael is a Project Ecologist at SLR who holds a BA (Hons) in Zoology from Trinity College Dublin. He has three years of experience in bird surveys (vantage point and breeding raptor) and bat transects for wind farms. He has also performed bat emergence surveys and habitat surveys for other projects and is a qualifying member of CIEEM.

Eoin Halpin MSc, BSc

Eoin has recently joined SLR as a Graduate Ecologist. He has a BSc in Botany and a MSc in Plant Ecology.

2.2.2 Walked Transect Surveys – April and June 2026

The two walked transect surveys comprised a walked transect across the Site carried out on 29th April 2026 and 2nd June 2026; the surveys began at sunset and ended two hours later, with 5-minute stopping points at each designated point along the transect to note any flying bats and record calls.

The surveyors were equipped with an Elekon BatLogger M full-spectrum handheld bat detector and recorded all bat observations made during the transect, making note of the bat species, behaviour, flight height and direction.

The walked transect routes were designed to include hedgerows and trees which provide ideal connections between linear features and potential key foraging areas across the development footprint.

2.2.3 Static Detector Surveys – April/May 2026 and June 2026

Two automated full spectrum static bat detectors were deployed on the Site for a period of seven days in similar habitats and in the same locations for each survey (as shown on **Figure 1** in **Appendix A**). The detectors were located within key features that are used by bats and most likely to be affected by the proposed development; one was in a treeline in the north of the site and the other within the main woodland in the centre of the site. Anabat Swift detectors were used for each survey; all were deployed with microphones attached to trees at the

⁵ www.batability.co.uk



locations marked on **Figure 1**. These detectors were programmed to record from 30 minutes before sunset until 30 minutes after sunrise.

Detector 1 Location

Detector 1 was affixed to a multi-stemmed coppiced hazel at the very north of the site near the stream and within a treeline habitat that is to be lost to facilitate the proposed development (located at ITM coordinates X 652305 Y 799956). This area is anticipated to provide an important commuting route through the Site.

Detector 2 Location

Detector 2 was positioned within the main woodland in the centre of the site and affixed to stem approx. 1m high on a mature tree in the woodland (located at ITM coordinates X 652276 Y 799836). This area will also be lost to facilitate the proposed development.

2.2.4 Habitat Appraisal for Potential Bat Roost Features and Assessment of Habitat Risk

A desk study was conducted using aerial maps to identify potential roosts and foraging habitats within the Project Site and along the grid route. The Site was further appraised during the additional field surveys conducted in late-April/May and June 2026. The purpose of this was to search for potential winter and summer bat roost features according to guidance (Collins, 2023), and to undertake an initial site risk assessment, assigning the habitat within the survey area to a risk category (low, moderate or high) (per **Appendix B**).

During the initial habitat survey carried out in October 2022 all of the trees on site of sufficient size and age were surveyed for potential roost features (PRFs). The 2022 bat survey for PRFs did not identify any trees with feature suitable for roosting bat following the current Bat Conservation Trust (BCT) guidance (Collins, 2023).

A tree survey was undertaken by SLR's Principal Landscape Architect on 22 April 2026, which considered the size and condition of the trees. Two site walkovers were undertaken by Jake Matthews prior to the bat surveys on 29 April 2026 and 2 June 2026 to check for any habitat changes since October 2022 and to search for potential bat roosts or overall habitat suitability for bats on the Site. Neither the tree survey nor the two site walkovers identified any potential roosting habitat.

The categories used to classify the bat roost suitability of any features found are detailed in **Table 1**.

Table 1: Categories of bat roost suitability

Suitability	Typical roosting features
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).



Suitability	Typical roosting features
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis & potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.

2.2.5 Weather Data and Survey Dates

The BCT guidance states that static bat detectors should be deployed for a minimum of five consecutive nights to reduce the risk of night-to-night variation in bat activity levels. Moreover, deployment of static detectors should be undertaken during optimal weather conditions, which are generally considered to be:

Sunset temperatures >10°C

Low wind speeds (i.e., <5m/s)

No (or low levels of) precipitation

The weather conditions during the late-April/May 2026 and June 2026 surveys are detailed in **Tables 2 and 3**.

Table 2: Late-APRIL/MAY 2026: Survey Dates and Weather Conditions – Static Detectors

Survey Used Analysis	Nights for	Sunset - Sunrise	Sunset temperature (°C)	Nightly Wind (m/s)	Average Speed	Precipitation
29/04/2026		21:16 05:43	15	7.2		Dry
30/04/2026		21:18 05:28	11	3.3		Light shower
01/05/2026		21:20 05:26	14	2.8		Dry
02/05/2026		21:21 05:25	12	5.8		Dry
03/05/2026		21:23 05:23	13	4.2		Dry
04/05/2025		21:25 05:21	11	4.5		Dry
05/05/2025		21:26 05:20	12	5.3		Dry
06/05/2026		21:28 05:19	11	2.5		Dry
07/05/2026		21:30 05:17	10	4.4		Dry

Table 3: JUNE 2026: Survey Dates and Weather Conditions – Static Detectors

Survey Used Analysis	Nights for	Sunset - Sunrise	Sunset temperature (°C)	Nightly Wind (m/s)	Average Speed	Precipitation
02/06/2026		21:16 05:43	15	8.1		Dry
03/06/2026		21:18 05:28	12	7.2		Rain
04/06/2026		21:20 05:26	11	9.1		Day
05/06/2026		21:21 05:25	10	3.1		Dry
06/06/2026		21:23 05:23	11	6.2		Dry
07/06/2026		21:25 05:21	12	6.1		Dry



Survey Used Analysis	Nights for	Sunset - Sunrise	Sunset temperature (°C)	Nightly Wind (m/s)	Average Speed	Precipitation
08/06/2026		21:26 05:20	12	6.2		Dry

2.2.6 Bat Sonogram Analysis

Bat calls from both the late-April/May and June 2026 surveys were analysed in full spectrum format using Kaleidoscope Pro (version 5.6.3) software. An auto identification filter within Kaleidoscope Pro was used initially to assign calls to likely species, using a Bats of Europe filter (version 5.4.0) for Ireland. This software allows data to be classified automatically with bat species which fit the same call characteristics that each call file provides.

While the auto identification is efficient, it is not totally infallible, therefore the following manual checks by an experienced ecologist skilled in bat call identification were also undertaken as follows:

- All files classified as 'no ID' were manually checked to confirm identification, using call parameters within Russ (2021);
- A randomly selected 10% subset of files assigned by the filter as being noise were also checked manually, to ensure no faint calls were missed;
- *Myotis* calls were identified to species level (where possible) and putative nathusius' pipistrelle *Pipistrellus nathusii* calls were manually checked, all using the parameters⁶ contained within Russ (2021); and
- Social calls were identified to species level using Middleton *et al.* (2014).

This report refers to "bat passes"; a bat pass has been defined as a single file captured by the bat detector, which contains two or more bat calls (likely attributed to the same bat). The number of bat passes does not relate to the number of bats present in one location (as one bat may make several passes); rather, it gives an indication of the level of bat activity in that location over each recording period. **Note:** that where more than one species was identified within the same bat pass, the pass was manually split into two so an accurate number of bat passes split by species was obtained.

2.2.7 Limitations

2.2.7.1 Weather Data

The weather conditions during the two surveys (as shown in **Tables 2a** and **2b**) were within the limits set out in the BCT guidance and the detectors were fully operational for the duration of the surveys.

2.2.7.2 Chance

This study provides a 'snapshot' of the conditions prevailing at the time of the activity survey. Lack of evidence of any one protected bat species does not necessarily preclude them from being present on Site at a later date. Whilst it is considered unlikely that evidence of additional bat species has been overlooked, due to the nature of the survey, it is feasible that some species may not have been recorded by virtue of habit or random chance.

⁶ Search-phase calls attributable to nathusius' pipistrelle were recorded, characterised by pipistrelle-type FM-qCF sweeps with peak energy ~36–40 kHz (typically ~39 kHz) and end frequencies <40 kHz across sequences



2.2.8 Habitat Assessment

2.2.8.1 Potential Roost Feature Assessment

The initial October 2022 site survey found that there were no trees or other features with potential roosting sites for bats⁷. The two bat surveys in April and June 2026 and the tree survey on 22 April 2026 both also assessed the site as having no potential roosting sites for bats.

2.2.8.2 Bat Landscapes

Biodiversity Maps⁸ was accessed to assess the bat landscape suitability of the Site and surrounding landscape for bats. **Table 4** details the results provided for the 2 km grid square N59J. Bat landscape suitability was constructed using records for each bat species from the National Bat Database from 2000 – 2009. The results can be used to explain patterns of species' occurrence and predict where species might occur (Bat Conservation Ireland, 2011). Higher index scores predict higher suitability for the relevant species across the local landscape, with 100 being the highest and 0 being the lowest.

Table 4: Bat landscape suitability for the 2 km grid square N59J in which the Site is located

Species	Scientific name	Index score
All bats	N/A	23.56
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	39
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	39
Leisler's bat	<i>Nyctalus leisleri</i>	37
Daubenton's bat	<i>Myotis daubentonii</i>	27
Natterer's bat	<i>Myotis nattereri</i>	25
Brown long-eared bat	<i>Plecotus auritus</i>	25
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	13
Whiskered bat	<i>Myotis mystacinus</i>	6
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	1

Based on the bat landscape suitability (**Table 3**), the Site is most suitable for more common and widespread species common pipistrelle (39), soprano pipistrelle (39), and Leisler's bat (37). However, all of these species were scored below 40 (out of 100), which would indicate a low suitability. Daubenton's bat (27), Natterer's bat (25), and Brown long-eared bat (25) scored fairly poorly while the site was considered unsuitable for Nathusius' pipistrelle (13), and Whiskered bat (6). Lesser horseshoe bat *Rhinolophus hipposideros* landscape suitability scored 1 and the Site is located outside their known range⁹. As such, lesser horseshoe bats are considered absent from the Site.

2.2.9 NBDC Data

NBDC has no records for any bat species recorded within the 2 km grid square (hectad N59J) within which the Site is located.

⁷ SLR (2023). Chapter 5 – Biodiversity of the EIAR.

⁸ Biodiversity Maps <https://maps.biodiversityireland.ie/Map>. Accessed May 2026.

⁹ NPWS (2019). The status of EU protected habitats and species in Ireland – Species assessment. Volume 3. Pp. 440 - 455.



2.2.10 National and International Designated Sites

There are no European sites (SACs), NHAs, or pNHAs designated for bats within 15 km of the Site. And therefore, no mitigation measures are required for the protection of any designated site.

3.0 Results of Field Surveys

3.1 Habitat and Roost Assessment

Overall, the woodland habitats on the Site were comprised of young to semi-mature tree species and as such they did not have any features (cracks and crevices) suitable for roosting bats.

3.2 Walked Transect Survey Results

The results of the bat walked transect surveys from the late-April/May and June 2026 are provided in the tables below.

3.2.1 Late-April/May 2026 Walked Transect Survey

In summary, only two species of bats were observed by the surveyors and recorded on the hand-held BatLogger M loggers from across the Site during this walked transect survey:

- Common pipistrelle (9 observed and 81 recorded); and,
- Soprano pipistrelle (2 observed and 12 recorded).

The level of activity across the Site is assessed as being very low with a very restricted number of species detected.

These two species of bat are very common and widespread in Ireland and are recorded very often during bat surveys and across a wide range of Irish habitat types.

3.2.2 June 2026 Walked Transect Survey

The results of the June 2026 walked transect was very similar to the earlier survey, again, with just two bat species detected;

- Common pipistrelle (9 observed and 81 recorded); and,
- Soprano pipistrelle (2 observed and 12 recorded).

Again, the level of bat activity across the Site is assessed as being very low with only two species of bat being detected.

3.3 Static Detector Survey Results

3.3.1 Late-April/May 2026 Static Detector Survey

The results of the deployment of two static bat detectors situated at ITM coordinates 652305 799956 and 652276 799836 are detailed in Error! Reference source not found.. These detectors were out in the field for nine nights from 29th April until 7th May. Seven nights of bat data was sufficient for assessing the relative bat utilisation of the Site.



Table 5: Summary of the static bat detector surveys late-April/May 2026 Survey – 7 nights of activity

Species	Scientific name	Passes Detector 1	Passes Detector 2
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	551	580
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	72	1069
Daubenton's bat	<i>Myotis daubentonii</i>	4	3
Whiskered bat	<i>Myotis mystacinus</i>	1	6
Leisler's bat	<i>Nyctalus leisleri</i>	29	86
Brown long-eared bat	<i>Plecotus auritus</i>	-	-
Natterer's bat	<i>Myotis nattereri</i>	4	-

When assessing the utilisation of the Site by bats the peak count is used rather than combining total from Detectors 1 and 2 to avoid repeat recordings where the same bat might have passes both detectors.

Common pipistrelle and soprano pipistrelle were the most abundantly recorded bats with peak counts of 580 and 1069 respectively. There were very low numbers of passes by other bats such as Leisler's bat (peak count 86), Daubenton's bat (3), Natterer's (4), and whiskered bat (6).

3.3.2 June 2026 Static Detector Survey

The results of the deployment of two static bat detectors situated at the same ITM coordinates 652305 799956 and 652276 799836 are detailed in **Table 6**. These detectors were out in the field for seven nights from 2nd to 8th June 2026.

Table 6: Summary of the static bat detector surveys late-April/May 2026 Survey – 6 nights of activity

Species	Scientific name	Passes Detector 1	Passes Detector 2
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	320	152
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	37	31
Daubenton's bat	<i>Myotis daubentonii</i>	14	-
Whiskered bat	<i>Myotis mystacinus</i>	2	-
Leisler's bat	<i>Nyctalus leisleri</i>	-	12
Brown long-eared bat	<i>Plecotus auritus</i>	1	1
Natterer's bat	<i>Myotis nattereri</i>	-	-

Again, common pipistrelle and soprano pipistrelle were the most abundantly recorded bat species (peak counts of 152 and 31 respectively), but the number of passes recorded was considerably down on the late-April/May survey. There was a similarly low number of other bats species including Leisler's bat (12), Daubenton's bat (14), brown-long-eared (2), and whiskered bat (2).



4.0 Discussion and Conclusions

4.1 Summary of bats using the site

This section will undertake an impact assessment on the bat species recorded on the Site.

Details of the estimated national and county level populations for each species using NPWS Article 17 data¹⁰.

All bats not recorded over the emergence survey, the two walked transect surveys or the two static detector deployments are considered likely absent from the site and can be reasonably discounted from further assessment. This includes lesser horseshoe bat.

Common pipistrelle

The national common pipistrelle population is estimated to be between 1,070,000 - 4,230,000 (NPWS, 2025) across 679 cells across the country, therefore, the county population is estimated to be between 40,972 – 161,973¹¹.

The peak count of common pipistrelle passes was recorded by detector 2¹² with 580 passes (late-April/May 2026). This represents 1.4 – 0.36% of the county population and a negligible proportion (0.14%) of the national population. Therefore, common pipistrelle are evaluated as being important on a **county level**.

Soprano pipistrelle

The national soprano pipistrelle population is estimated to be between 1,204,800 – 2,709,600 (NPWS, 2025) across 692 cells across the country, therefore, the county population is estimated to be between 20,139 - 48,333.

The peak count of soprano pipistrelle passes was recorded by detector 2 with 418 passes. This represents 0.9 - 2% of the county population and a negligible proportion (0.04%) of the national population. Therefore, soprano pipistrelle are evaluated as being important on a **county level**.

Leisler's bat

The national Leisler's bat population is estimated to be between 112,800 – 202,300 (NPWS, 2025) across 576 cells across the country, therefore, the county population is estimated to be between 5,100 – 9,130.

The peak count of Leisler's bat passes was recorded by detector 1 with 86 passes (late-April/May 2026). This represents 1.7 – 0.94% of the county population and a negligible proportion (0.008%) of the national population. Therefore, common pipistrelle are evaluated as being important on a **county level**.

Daubenton's bat

The national Daubenton's bat population is estimated to be between 55,200 – 76,500 (NPWS, 2025) across 554 cells across the country, therefore, the county population is estimated to be between 2,600 – 3,600.

The peak count of Daubenton's bat passes was recorded by detector 2 with 14 passes (late-April/May 2026). This represents 0.55 – 0.11% of the county population and a negligible

¹⁰ <https://www.npws.ie/sites/default/files/publications/pdf/article-17-report-2025-volume-3.pdf>

¹¹ 1,070,000 – 4,230,000 [national common pipistrelle population] divided by 679 (total no. of cells recorded), multiplied by 26 [total number of cells this species is recorded in Co. Cavan].

¹² Peak count used rather than combining total from detectors 1 and 2 to avoid repeat recordings.



proportion (0.02%) of the national population. Therefore, common pipistrelle are evaluated as being important on a **local level**.

The low activity and number of passes for the other bat species is so low that they can be considered to be infrequently present on the Site and they can only be important at the **local level**.

4.2 Proposed Mitigation and Enhancement Measures

There will be a reduction of suitable commuting and foraging habitat in the form of scrub and woodland removal which will adversely affect bats through a reduction in their populations in the short- to medium-term.

However, it has been established that the level of bat activity across the Site is low and only the common bat species of common pipistrelle and soprano pipistrelle utilising the Site with any frequency. The bat surveys found that there were no trees with potential roost features and so the proposed quarry extension may also will not result in the loss of potential bat roosting habitat the woodland habitat and there will be no significant effect on the overall bat population on the Site or in the surrounding areas. in the form of woodland removal.

The proposed development also has the potential to interfere with bat populations and bat habitat bordering the proposed development Site through an increase in the use of artificial lighting during construction and operational phase of the proposed development.

The following mitigation measures are proposed:

- All woody vegetation (i.e. trees and shrubs), along the site boundaries and within the application area, but outside the proposed extraction areas, will be retained.
- The loss of trees and shrubs will be partially compensated by the planting of ca. 1,315 m² of a native woodland mix on the buffer area (i.e. currently pastureland) between the local road to the west of the site and the western boundary of the extraction area. These planting works form part of the landscape and restoration measures for the proposed development, as was detailed on EIAR Figure 2-4 (Landscape and Restoration Plan).
- The retention of the boundary habitats and the compensatory planting will act to retain bat foraging and commuting corridors along the boundaries of the Site to ensure connectivity to similar habitats in the areas surrounding the quarry. This will ensure there is no significant effect on the local bat population from the removal of vegetation in the quarry extension area.
- All external lighting to be installed, including facilitating nighttime working or security lighting, on the site shall be sensitive to the presence of bats in the area. Lighting of the site during construction will be designed in accordance with the following guidance:
 - o Guidance Notes for the Reduction of Obtrusive Light GN01/20 (Institute of Lighting Professionals, 2021)
 - o Bats & Lighting - Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, December 2010)
 - o Guidance Note 8 Bats and artificial lighting (Institute of Lighting Professionals, 2018)

All lighting shall be LED and controlled with photo-cells and time clocks.

During operational phase all artificial lighting should be directed into the Site and away from the tree lines bordering the Site using cowls, shields, or louvres to reduce light spillage. The boundary tree lines and hedgerows will therefore be rendered "dark zones" (<1 lux, as is typical during a moonlit night) to facilitate commuting and foraging bats (Bat Conservation Trust, 2024).



Light emitting diodes (LEDs) will be installed to emit <3 lux (Bat Conservation Ireland, 2011). These emit little or no UV which attracts significantly lower numbers of invertebrates and, therefore, are less impactful on bat species.

Significance of Residual Effects

As detailed above, there may be a short-term, minor displacement to the local bat populations of the bat assemblage recorded on the Site, chiefly to the three species of bats that were recorded in abundance on the Site: common pipistrelle, soprano pipistrelle, and Leisler's bat. There will be no impacts to roosting bats given that all the trees surveyed did not have suitable bat roosting feature.

Overall, due to the very low levels of bat activity found during the April and June 2026 walked transect and static detector bat surveys the proposed development will not have a significant effect on the bat population within the Site or on the overall local bat population. However, through the implementation of the mitigation measures detailed above, the bat assemblage will be able to continue to use the Site for foraging and commuting following the completion of the restoration phase and potentially the Site will become more suitable to bats following the establishment of the restored habitats.



5.0 References

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Appendix A Figures

ACP RFI Item 5(b) - Bat Survey Report

**Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan
(ABP-318793-24 P. Ref. 23/169)**

P&SCivil Works Ltd.

SLR Project No.: 501.066157.00001

12 June 2026

NOTES
1. Base Mapping: OpenStreetMap © (www.openstreetmap.org/copyright)
2. CYAL50316488 © Ordnance Survey Ireland/Government of Ireland.
LEGEND

● Bat Detector Locations

□ Site Outline



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ENVIRONMENTAL IMPACT ASSESSMENT REPORT

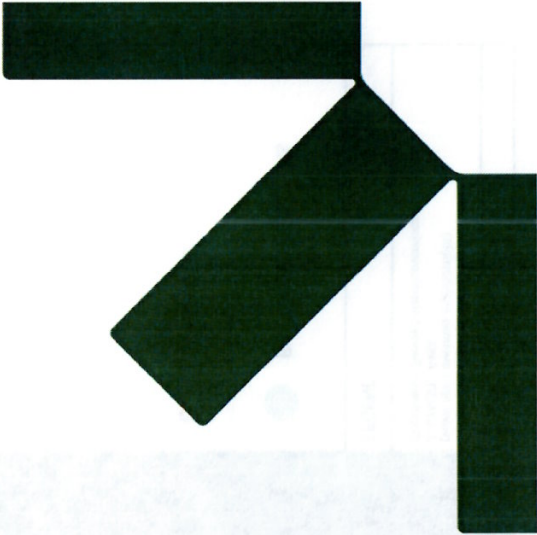
**QUARRY AT MULLYMAGOWAN,
STRADONE, CO. CAVAN**

April and June 2026 Bat
Detector Locations

FIGURE 1

Scale	Date
1:50000 @ A3	JUNE 2026





Appendix B Criteria for Assessing Habitat Risk for Bats

ACP RFI Item 5(b) - Bat Survey Report

**Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan
(ABP-318793-24 P. Ref. 23/169)**

P&S Civil Works Ltd.

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Criteria for Assessing Habitat Risk for Bats

Table B 1 was taken from the latest NatureScot guidance

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Table B 1: Bat Habitat Risk

Habitat Risk	Description
Low	• Small number of potential roost features, of low quality • Low quality foraging habitat that could be used by small numbers of foraging bats • Isolated site not connected to the wider landscape by prominent linear features
Moderate	• Buildings, trees or other structures with moderate-high potential as roosts sites on or near the site • Habitats could be used extensively by foraging bats • Site is connected to the wider landscape by linear features such as scrub, tree lines and streams
High	• Numerous suitable buildings, trees (particularly mature ancient woodland) or other structures with moderate-high potential as roost sites on or near the site, and/or confirmed roosts present close to or on the site • Extensive and diverse habitat mosaic of high quality for foraging bats • Site is connected to the wider landscape by a network of strong linear features such as rivers, blocks of woodland and mature hedgerows • At/near edge of range and/or on an important flyway • Close to key roost and/or swarming site



Appendix H Landscaping Plan

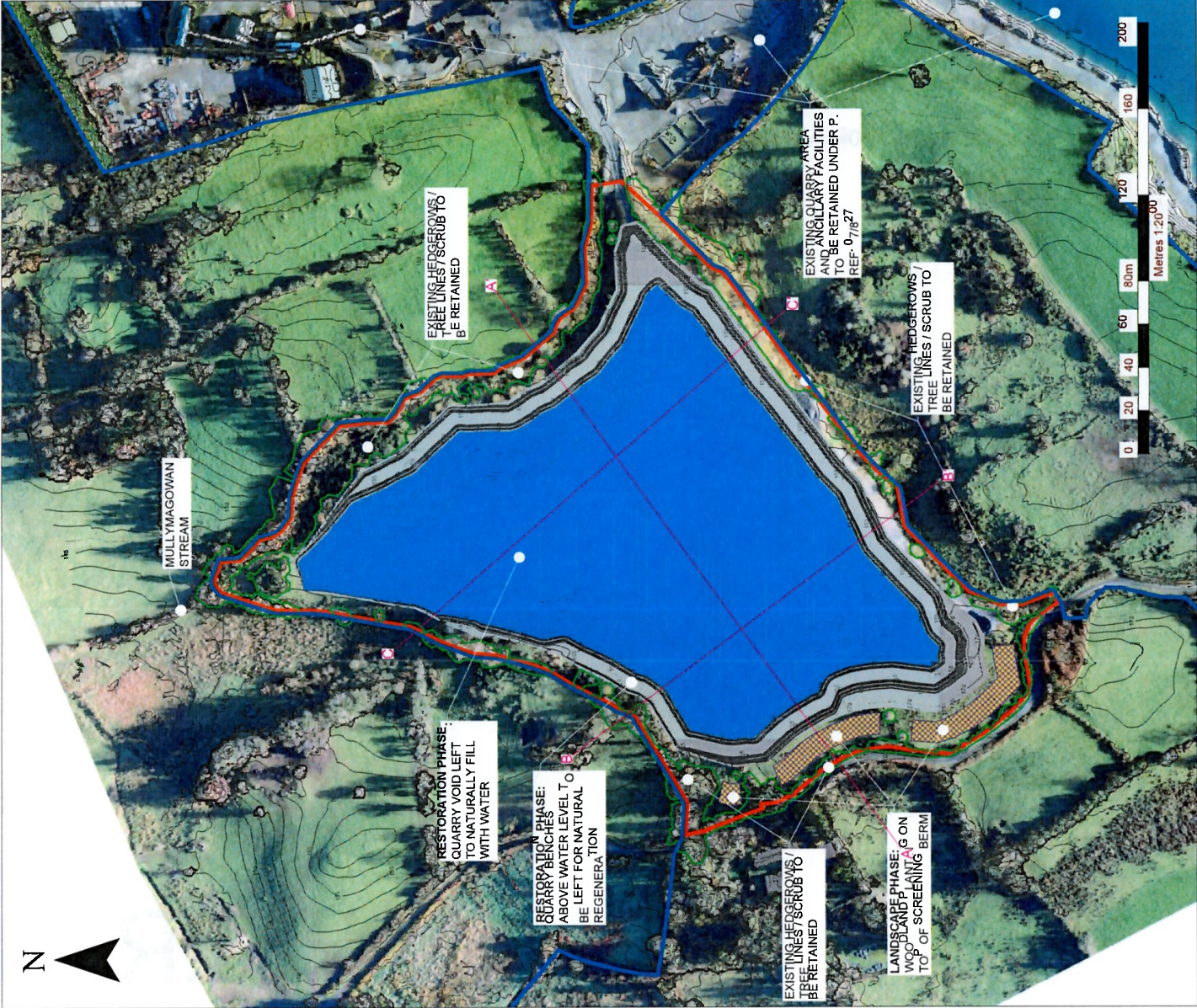
Further Information Response (ABP-318793-24 P. Ref. 23/169)

Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan

P&S Civil Works Ltd.

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11 June 2026



LANDSCAPE AND RESTORATION SCHEME

It is proposed to restore the quarry area to a natural habitat. This is one of the beneficial uses recommended in the EPA Guidelines: 'Environmental Management in the Extractive Industry' (2006). All of the existing boundary vegetation will be retained to help minimise the visibility of the proposed development and for ecological reasons.

LANDSCAPE PHASE

(to be carried out on commencement of the extraction works): Topsoil and overburden will be removed from the proposed extension area and used to construct a 10m wide screening berm along the south-western boundary of the extraction area (topsoil and overburden material to be handled separately, with topsoil temporarily stored on site, before placed on the berm as the top layer). All existing mature trees within this area will be retained.

Once completed, a native woodland mix will be planted on top of the berm. This will provide a visual and acoustic screen for locations to the west, as well as partially compensate the loss of existing scrub / woodland vegetation within the site.

RESTORATION PHASE

(to be carried out on completion of all extraction works): All machinery and equipment will be removed from the quarry void, which will then be left to naturally fill with water. The natural rebound level is expected to be around 146m AOD. The final water level will vary throughout the year depending on rainfall levels.

All quarry faces / benches which remain above the water level will be left for natural regeneration. In time the rock will weather, and grass and scrub will become established in crevices within the rock, softening the appearance of the quarry face. The quarry face will also provide nesting habitat for birds, such as peregrine falcon.

For health and safety reasons, i.e. due to the narrow space and adjoining steep drops, it is not feasible to place soil and carry out planting on the quarry benches.

GENERAL NOTES:

- All plant handling, planting and establishment works to be carried out in accordance with current best practice and to take place in the appropriate planting season (e.g. bareroot planting: November to March only) and in favourable weather conditions.
- All works to be carried out by a suitably qualified landscape contractor.
- Establishment maintenance to be carried out for 2 years following the completion of planting (minimum 3 maintenance visits per year, i.e. spring, summer and autumn). Works to include weed control, replacement planting (where required) and the adjustment/removal of spiral guards.

NATIVE WOODLAND MIX

To be planted at 1.5m centres (i.e. 1 plant/2.25m²; approx. 1,315m² in total = 585 plants). To be planted randomly with no more than 4-6 plants of the same species in one group and to be supplied with spiral guards.

No.	Plant Name	Common Name	Height (cm)	Age	%
Transplants/Container Grown Shrubs					
115	Corylus avellana	Common Hazel	60-90	1+0	20
60	Crataegus monogyna	Hawthorn	60-90	1+1	10
60	Prunus spinosa	Blackthorn	60-90	1+0	10
60	Salix aurita	Weep Willow	60-120	0+1	10
60	Sambucus nigra	Elder	60-90	1+0	10
115	Sorbus aria	Whitebeam	60-90	1+1	20
115	Sorbus aucuparia	Rowan	60-90	1+1	20

NOTES
'Orthomosaic produced from Aerial Photography flown November 2022 by SLR Consulting Ireland (IAA Permit No 042018) www.slrconsulting.com
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Orthomosaic produced using Ground Control Points, Related to Irish Transverse Mercator Coordinate System and OS Main Head Level Datum.
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LEGEND

- APPLICANT'S LAND INTEREST
- BOUNDARY
- APPLICATION AREA
- HEDGEROWS / TREE LINES / SCRUB TO BE RETAINED
- LANDSCAPE PHASE (ON COMMENCEMENT OF THE EXTRACTION WORKS)
- SCREENING BERM
- NATIVE WOODLAND PLANTING
- RESTORATION PHASE (ON COMPLETION OF THE EXTRACTION WORKS)
- QUARRY VOID LEFT TO NATURALLY FILL WITH WATER
- QUARRY FACES AND BENCHES, ABOVE THE WATER LEVEL, TO BE LEFT FOR NATURAL REGENERATION



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QUARRY AT MULLYMAGOWAN,
STRADONE CO. CAVAN
LANDSCAPE AND RESTORATION PLAN

FIGURE 2-4

Scale 1:2,000 @A3
Date FEBRUARY 2023

Appendix I **Bat Report**

Further Information Response (ABP-318793-24 P. Ref. 23/169)

Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan

P&S Civil Works Ltd.

SLR Project No.: 501.064821.00001

11 June 2026



ACP RFI Item 5(b) - Bat Survey Report

Proposed Quarry Extension at Mullymagowan Townland,
Stradone, Co. Cavan (ABP-318793-24 P. Ref. 23/169)

P&S Civil Works Ltd.

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SLR Project No.: **501.066157.00001**

Client Reference No: **904200**

12 June 2026

Revision: Final



Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
1 Draft	10 June 2026	Michael Bailey Jake Matthews	Jake Matthews	
Final	12 June 2026	Michael Bailey	Lynn Hassett	
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1.0 Introduction

1.1 Background

SLR Environmental Consulting Ireland Ltd (hereafter 'SLR') was commissioned by P&S Civil Works Ltd in February 2026 to undertake bat surveys to address Item 5(b) of a request for further information (RFI) from An Coimisiún Pleanála (ACP) in relation to the appeal concerning a proposed quarry extension at Mullymagowan Townland, Stradone, Co. Cavan. (Cavan Planning Reference 23/169; ACP Case Number ABP-318793-24).

The proposed quarry extension was previously permitted under P. Ref. 12/101 (P. Ref. 17/383) and never commenced. It is further proposed to utilise existing ancillary buildings and facilities / activities, as currently permitted by P. Ref. 07/827.

1.2 Site Description

The project site is located in the townland of Mullymagowan, Co. Cavan, approximately 4.5km south of the village of Stradone. The site comprises a number of undulating pasture fields, parts of which have become encroached by dense tree / shrub vegetation. Also included within the site is an area which was stripped and has been used for stockpiling. Some of the internal and external field boundaries are marked by a mix of hedgerows and tree lines.

It is assumed that, except for some of the treelines and hedgerows, a majority of the woody vegetation has developed naturally, due to a lack of management on the most steeply sloping / rocky sections of the site. Over the years this woody vegetation has also encroached on some of the flatter sections of the site, as is now evident, possibly due to low levels of cattle grazing.

All woody vegetation within the extraction area and some along its boundaries will have to be removed. The total area of vegetation to be removed is ca. 12,370m², including an area of 25 tall / mature sycamore and ash.

1.3 Scope of Study

The main aim of this bat report was to obtain baseline information relating to use of the Site by bats and associated levels of activity. This in turn allowed for the preparation of an update of the biodiversity chapter of the Environmental Impact Assessment (EIA) Report dated February 2023 and to provide further assessment of the utilisation of the site's habitats by bats and determine if there will be any significant impact on the local bat populations as a result of the proposed development. This report has been prepared to meet Item 5(b) of the ACP Request for Further Information which states that:

"It is noted that the proposed woodland to be removed may be use by bats (for example foraging/roosting). A detailed impact assessment on bats in accordance with best practice guidance (including additional surveys if deemed required) by a suitably qualified bat expert is required to be included in the EclA. Article 5(3)(a) of the amended Directive 2014/52/EU requires that "the developer shall ensure that the environmental impact assessment report is prepared by competent experts". Marnell et al (2022) states that bat survey reports should "present the qualifications and experience of the surveyors and authors". You are required to provide the qualifications and experience of the surveyors and authors. In the event that a derogation licence for bats is required, it is noted that the Commission is precluded from deciding on the proposal development until a Derogation for bat has been issued and confirming documentation copied to the Commission".



Specific study objectives were to:

- Confirm the presence/absence of potential bat roost features (PRFs) within the woodland habitat of the Project Site,
- Gather further information on key commuting or foraging habitat features that could be affected by the project;
- Determine the bat assemblage using the Project Site for foraging or commuting purposes; and
- Determine levels of bat activity within the Project Site and assess the potential for significant effects on the local bat population.

1.4 Relevant Legislation

1.4.1 Irish Legislation

All species of bat and their roosts are listed under Schedule 5 of the Irish Wildlife Act 1976 (as amended 2000, 2010, 2021, and 2023) and protected by law. It is an offence to harm, interfere or disturb bats or their roosts without an appropriate licence from the National Parks and Wildlife Service (NPWS).

The Wildlife Act amendment (2000) also includes protection to Natural Heritage Areas (NHAs). These are areas containing habitats or species that require legal protection from damage, which can include bats. Not all NHAs have received statutory designation, and these are termed proposed Natural Heritage Areas (pNHAs). While lacking the same level of legal protection as NHAs, pNHAs are subject to limited protection via agri-environmental planning schemes and the recognition of the ecological value of pNHAs by planning and licencing authorities.

1.4.2 EU Legislation

Under the Habitats Directive 1992 (92/43/EEC), member states of the European Union must designate Special Areas of Conservation (SACs), which form part of the EU-wide Natura 2000 protected area network. The aim of this network is to safeguard biodiversity against potentially damaging developments. SACs are designated based on the presence of habitats or species (known as 'qualifying interests' or QIs) listed under Annex I or Annex II of the Habitats Directives, respectively. The only species of bat in Ireland that is listed under Annex II of the Habitats Directives is the lesser horseshoe bat *Rhinolophus hipposideros*.

While strict protection is afforded SACs, all species of bat in Ireland also receive additional protection under Annex IV of the Habitats Directive. This prohibits the deliberate disturbance of bat species (particularly during the periods of breeding, nursing, and hibernation), as well as the deterioration and/or destruction of roosts across their entire natural range within the EU, both within and outside Natura 2000 sites.

1.4.3 Other International Legislation

Ireland has ratified two international wildlife laws pertaining to bats:

- The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, 1982). Part of this convention stipulates that all bat species and their habitats are conserved; and
- The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention, 1979). The aim of this convention was to protect migratory species (which includes some species of bats) across all European borders.



2.0 Methodology

2.1 Updated Desk Study

A desk-based study was carried out in April 2026 to gather information relating to existing records of bat species within the Site and surrounding area. This included:

- Recent satellite maps and Environmental Sensitivity Mapper to identify features of potential value to bats at the Project Site;
- The bat landscapes suitability index for the Project Site¹:
 - The index ranks landscapes from least (0) to most favourable (100) using records held by Bat Conservation Ireland (BCI) and landscape features to train a predictive model that identifies geographical areas suitable for individual bat species;
- Maps of nationally and internationally designated sites for bats within 15 km from the Project Site (EPA, 2025)²;
- The location of the Project Site in relation to the edge of bat species' known Irish ranges (NPWS, 2019)³; and
- Previous records of bats within the 10 km grid square (N59J) in which the Site is contained (NBDC, 2026)⁴.

2.2 Field Survey Methodology and Rationale

The field survey methodology was designed with reference to current bat survey guidance (Collins, 2023).

Two bat surveys were carried on the Site by experienced SLR Bat Ecologist, Jake Matthews in late-April/May and June 2026, details below.

2.2.1 Evidence of Technical Competence

This report was prepared by SLR Associate Ecologist Michael Bailey and SLR Senior Ecologist Jake Matthews. The bat surveys were carried out by SLR Senior Ecologist Jake Matthews with assistance from SLR Project Ecologist Michael James (April 2026) and SLR Graduate Ecologist Eoin Halpin (June 2026).

The bat call analysis from the walked transect and static detector surveys was analysed by SLR Project Ecologist Lorcan Kelly.

Jake Matthews MSc, BSc (Hons), ACIEEM

Jake Matthews MSc, BSc (Hons), ACIEEM is a Senior Ecologist at SLR. Jake has an MSc in Ecology and Environment Management from Liverpool Hope University and a BSc (Hons) in Wildlife Conservation from the University of Salford. He has six years' experience as a consultant ecologist and has been at SLR since 2022, having previously worked for other similar consultancies in the UK since 2019 and has worked on several large-scale infrastructure projects. Jake is experienced in bat surveys and is competent at bat identification, bat analysis and report writing.

¹ Obtained via Biodiversity Ireland <https://maps.biodiversityireland.ie/Map> [Last accessed 15/06/2026].

² Obtained via EPA map viewer <https://gis.epa.ie/EPA/Maps/> [Last accessed 15/06/2026].

³ Obtained via maps contained under Article 17 reporting <https://www.npws.ie/publications/article-17-reports/article-17-reports-2019> [Last accessed 15/06/2026].

⁴ Obtained via Biodiversity Maps <https://maps.biodiversityireland.ie/Map> [Last accessed 28/05/2026].



Michael Bailey MSc, BSc

Michael is an Associate at SLR who holds a BSc (Hons) in Biology and Ecology from the University of Ulster, and an MSc in Quantitative Conservation Biology from the University of the Witwatersrand, Johannesburg, South Africa. Michael is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Michael is an experienced consultant ecologist with over 20 years of field and research experience with mammal, bird, bat and invasive species surveys in Ireland, the UK and Africa. He has prepared Appropriate Assessments and Ecological Impact Assessments for a wide range of infrastructure, mining and extractive industry, and renewable energy projects.

Lorcan Kelly BSc

Lorcan is a Project Ecologist who holds a BSc in Science (Zoology) from University College Dublin and an MSc in Applied Ecology and Conservation from the University of East Anglia. He joined SLR in September 2023 and is a qualifying member of CIEEM. Lorcan has experience of bat surveys including night-time bat walkovers and automated static detector surveys. Lorcan is certified in bat call analysis with a certificate awarded in April 2024 by BatAbility⁵ having completed his Technician Level graded assessment (certificate ID: 04.1781).

Michael James BA (Hons)

Michael is a Project Ecologist at SLR who holds a BA (Hons) in Zoology from Trinity College Dublin. He has three years of experience in bird surveys (vantage point and breeding raptor) and bat transects for wind farms. He has also performed bat emergence surveys and habitat surveys for other projects and is a qualifying member of CIEEM.

Eoin Halpin MSc, BSc

Eoin has recently joined SLR as a Graduate Ecologist. He has a BSc in Botany and a MSc in Plant Ecology.

2.2.2 Walked Transect Surveys – April and June 2026

The two walked transect surveys comprised a walked transect across the Site carried out on 29th April 2026 and 2nd June 2026; the surveys began at sunset and ended two hours later, with 5-minute stopping points at each designated point along the transect to note any flying bats and record calls.

The surveyors were equipped with an Elekon BatLogger M full-spectrum handheld bat detector and recorded all bat observations made during the transect, making note of the bat species, behaviour, flight height and direction.

The walked transect routes were designed to include hedgerows and trees which provide ideal connections between linear features and potential key foraging areas across the development footprint.

2.2.3 Static Detector Surveys – April/May 2026 and June 2026

Two automated full spectrum static bat detectors were deployed on the Site for a period of seven days in similar habitats and in the same locations for each survey (as shown on **Figure 1** in **Appendix A**). The detectors were located within key features that are used by bats and most likely to be affected by the proposed development; one was in a treeline in the north of the site and the other within the main woodland in the centre of the site. Anabat Swift detectors were used for each survey; all were deployed with microphones attached to trees at the

⁵ www.batability.co.uk



locations marked on **Figure 1**. These detectors were programmed to record from 30 minutes before sunset until 30 minutes after sunrise.

Detector 1 Location

Detector 1 was affixed to a multi-stemmed coppiced hazel at the very north of the site near the stream and within a treeline habitat that is to be lost to facilitate the proposed development (located at ITM coordinates X 652305 Y 799956). This area is anticipated to provide an important commuting route through the Site.

Detector 2 Location

Detector 2 was positioned within the main woodland in the centre of the site and affixed to stem approx. 1m high on a mature tree in the woodland (located at ITM coordinates X 652276 Y 799836). This area will also be lost to facilitate the proposed development.

2.2.4 Habitat Appraisal for Potential Bat Roost Features and Assessment of Habitat Risk

A desk study was conducted using aerial maps to identify potential roosts and foraging habitats within the Project Site and along the grid route. The Site was further appraised during the additional field surveys conducted in late-April/May and June 2026. The purpose of this was to search for potential winter and summer bat roost features according to guidance (Collins, 2023), and to undertake an initial site risk assessment, assigning the habitat within the survey area to a risk category (low, moderate or high) (per **Appendix B**).

During the initial habitat survey carried out in October 2022 all of the trees on site of sufficient size and age were surveyed for potential roost features (PRFs). The 2022 bat survey for PRFs did not identify any trees with feature suitable for roosting bat following the current Bat Conservation Trust (BCT) guidance (Collins, 2023).

A tree survey was undertaken by SLR's Principal Landscape Architect on 22 April 2026, which considered the size and condition of the trees. Two site walkovers were undertaken by Jake Matthews prior to the bat surveys on 29 April 2026 and 2 June 2026 to check for any habitat changes since October 2022 and to search for potential bat roosts or overall habitat suitability for bats on the Site. Neither the tree survey nor the two site walkovers identified any potential roosting habitat.

The categories used to classify the bat roost suitability of any features found are detailed in **Table 1**.

Table 1: Categories of bat roost suitability

Suitability	Typical roosting features
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).



Suitability	Typical roosting features
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis & potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat.

2.2.5 Weather Data and Survey Dates

The BCT guidance states that static bat detectors should be deployed for a minimum of five consecutive nights to reduce the risk of night-to-night variation in bat activity levels. Moreover, deployment of static detectors should be undertaken during optimal weather conditions, which are generally considered to be:

Sunset temperatures >10°C

Low wind speeds (i.e., <5m/s)

No (or low levels of) precipitation

The weather conditions during the late-April/May 2026 and June 2026 surveys are detailed in **Tables 2 and 3**.

Table 2: Late-APRIL/MAY 2026: Survey Dates and Weather Conditions – Static Detectors

Survey Used Analysis	Nights for	Sunset - Sunrise	Sunset temperature (°C)	Nightly Wind (m/s)	Average Speed	Precipitation
29/04/2026		21:16 05:43	15	7.2		Dry
30/04/2026		21:18 05:28	11	3.3		Light shower
01/05/2026		21:20 05:26	14	2.8		Dry
02/05/2026		21:21 05:25	12	5.8		Dry
03/05/2026		21:23 05:23	13	4.2		Dry
04/05/2025		21:25 05:21	11	4.5		Dry
05/05/2025		21:26 05:20	12	5.3		Dry
06/05/2026		21:28 05:19	11	2.5		Dry
07/05/2026		21:30 05:17	10	4.4		Dry

Table 3: JUNE 2026: Survey Dates and Weather Conditions – Static Detectors

Survey Used Analysis	Nights for	Sunset - Sunrise	Sunset temperature (°C)	Nightly Wind (m/s)	Average Speed	Precipitation
02/06/2026		21:16 05:43	15	8.1		Dry
03/06/2026		21:18 05:28	12	7.2		Rain
04/06/2026		21:20 05:26	11	9.1		Day
05/06/2026		21:21 05:25	10	3.1		Dry
06/06/2026		21:23 05:23	11	6.2		Dry
07/06/2026		21:25 05:21	12	6.1		Dry



Survey Used Analysis	Nights for	Sunset - Sunrise	Sunset temperature (°C)	Nightly Wind (m/s)	Average Speed	Precipitation
08/06/2026		21:26 05:20	12	6.2		Dry

2.2.6 Bat Sonogram Analysis

Bat calls from both the late-April/May and June 2026 surveys were analysed in full spectrum format using Kaleidoscope Pro (version 5.6.3) software. An auto identification filter within Kaleidoscope Pro was used initially to assign calls to likely species, using a Bats of Europe filter (version 5.4.0) for Ireland. This software allows data to be classified automatically with bat species which fit the same call characteristics that each call file provides.

While the auto identification is efficient, it is not totally infallible, therefore the following manual checks by an experienced ecologist skilled in bat call identification were also undertaken as follows:

- All files classified as 'no ID' were manually checked to confirm identification, using call parameters within Russ (2021);
- A randomly selected 10% subset of files assigned by the filter as being noise were also checked manually, to ensure no faint calls were missed;
- *Myotis* calls were identified to species level (where possible) and putative nathusius' pipistrelle *Pipistrellus nathusii* calls were manually checked, all using the parameters⁶ contained within Russ (2021); and
- Social calls were identified to species level using Middleton *et al.* (2014).

This report refers to "bat passes"; a bat pass has been defined as a single file captured by the bat detector, which contains two or more bat calls (likely attributed to the same bat). The number of bat passes does not relate to the number of bats present in one location (as one bat may make several passes); rather, it gives an indication of the level of bat activity in that location over each recording period. **Note:** that where more than one species was identified within the same bat pass, the pass was manually split into two so an accurate number of bat passes split by species was obtained.

2.2.7 Limitations

2.2.7.1 Weather Data

The weather conditions during the two surveys (as shown in **Tables 2a** and **2b**) were within the limits set out in the BCT guidance and the detectors were fully operational for the duration of the surveys.

2.2.7.2 Chance

This study provides a 'snapshot' of the conditions prevailing at the time of the activity survey. Lack of evidence of any one protected bat species does not necessarily preclude them from being present on Site at a later date. Whilst it is considered unlikely that evidence of additional bat species has been overlooked, due to the nature of the survey, it is feasible that some species may not have been recorded by virtue of habit or random chance.

⁶ Search-phase calls attributable to nathusius' pipistrelle were recorded, characterised by pipistrelle-type FM-qCF sweeps with peak energy ~36–40 kHz (typically ~39 kHz) and end frequencies <40 kHz across sequences



2.2.8 Habitat Assessment

2.2.8.1 Potential Roost Feature Assessment

The initial October 2022 site survey found that there were no trees or other features with potential roosting sites for bats⁷. The two bat surveys in April and June 2026 and the tree survey on 22 April 2026 both also assessed the site as having no potential roosting sites for bats.

2.2.8.2 Bat Landscapes

Biodiversity Maps⁸ was accessed to assess the bat landscape suitability of the Site and surrounding landscape for bats. **Table 4** details the results provided for the 2 km grid square N59J. Bat landscape suitability was constructed using records for each bat species from the National Bat Database from 2000 – 2009. The results can be used to explain patterns of species' occurrence and predict where species might occur (Bat Conservation Ireland, 2011). Higher index scores predict higher suitability for the relevant species across the local landscape, with 100 being the highest and 0 being the lowest.

Table 4: Bat landscape suitability for the 2 km grid square N59J in which the Site is located

Species	Scientific name	Index score
All bats	N/A	23.56
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	39
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	39
Leisler's bat	<i>Nyctalus leisleri</i>	37
Daubenton's bat	<i>Myotis daubentonii</i>	27
Natterer's bat	<i>Myotis nattereri</i>	25
Brown long-eared bat	<i>Plecotus auritus</i>	25
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	13
Whiskered bat	<i>Myotis mystacinus</i>	6
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	1

Based on the bat landscape suitability (**Table 3**), the Site is most suitable for more common and widespread species common pipistrelle (39), soprano pipistrelle (39), and Leisler's bat (37). However, all of these species were scored below 40 (out of 100), which would indicate a low suitability. Daubenton's bat (27), Natterer's bat (25), and Brown long-eared bat (25) scored fairly poorly while the site was considered unsuitable for Nathusius' pipistrelle (13), and Whiskered bat (6). Lesser horseshoe bat *Rhinolophus hipposideros* landscape suitability scored 1 and the Site is located outside their known range⁹. As such, lesser horseshoe bats are considered absent from the Site.

2.2.9 NBDC Data

NBDC has no records for any bat species recorded within the 2 km grid square (hectad N59J) within which the Site is located.

⁷ SLR (2023). Chapter 5 – Biodiversity of the EIAR.

⁸ Biodiversity Maps <https://maps.biodiversityireland.ie/Map>. Accessed May 2026.

⁹ NPWS (2019). The status of EU protected habitats and species in Ireland – Species assessment. Volume 3. Pp. 440 - 455.



2.2.10 National and International Designated Sites

There are no European sites (SACs), NHAs, or pNHAs designated for bats within 15 km of the Site. And therefore, no mitigation measures are required for the protection of any designated site.

3.0 Results of Field Surveys

3.1 Habitat and Roost Assessment

Overall, the woodland habitats on the Site were comprised of young to semi-mature tree species and as such they did not have any features (cracks and crevices) suitable for roosting bats.

3.2 Walked Transect Survey Results

The results of the bat walked transect surveys from the late-April/May and June 2026 are provided in the tables below.

3.2.1 Late-April/May 2026 Walked Transect Survey

In summary, only two species of bats were observed by the surveyors and recorded on the hand-held BatLogger M loggers from across the Site during this walked transect survey:

- Common pipistrelle (9 observed and 81 recorded); and,
- Soprano pipistrelle (2 observed and 12 recorded).

The level of activity across the Site is assessed as being very low with a very restricted number of species detected.

These two species of bat are very common and widespread in Ireland and are recorded very often during bat surveys and across a wide range of Irish habitat types.

3.2.2 June 2026 Walked Transect Survey

The results of the June 2026 walked transect was very similar to the earlier survey, again, with just two bat species detected;

- Common pipistrelle (9 observed and 81 recorded); and,
- Soprano pipistrelle (2 observed and 12 recorded).

Again, the level of bat activity across the Site is assessed as being very low with only two species of bat being detected.

3.3 Static Detector Survey Results

3.3.1 Late-April/May 2026 Static Detector Survey

The results of the deployment of two static bat detectors situated at ITM coordinates 652305 799956 and 652276 799836 are detailed in Error! Reference source not found.. These detectors were out in the field for nine nights from 29th April until 7th May. Seven nights of bat data was sufficient for assessing the relative bat utilisation of the Site.



Table 5: Summary of the static bat detector surveys late-April/May 2026 Survey – 7 nights of activity

Species	Scientific name	Passes Detector 1	Passes Detector 2
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	551	580
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	72	1069
Daubenton's bat	<i>Myotis daubentonii</i>	4	3
Whiskered bat	<i>Myotis mystacinus</i>	1	6
Leisler's bat	<i>Nyctalus leisleri</i>	29	86
Brown long-eared bat	<i>Plecotus auritus</i>	-	-
Natterer's bat	<i>Myotis nattereri</i>	4	-

When assessing the utilisation of the Site by bats the peak count is used rather than combining total from Detectors 1 and 2 to avoid repeat recordings where the same bat might have passes both detectors.

Common pipistrelle and soprano pipistrelle were the most abundantly recorded bats with peak counts of 580 and 1069 respectively. There were very low numbers of passes by other bats such as Leisler's bat (peak count 86), Daubenton's bat (3), Natterer's (4), and whiskered bat (6).

3.3.2 June 2026 Static Detector Survey

The results of the deployment of two static bat detectors situated at the same ITM coordinates 652305 799956 and 652276 799836 are detailed in **Table 6**. These detectors were out in the field for seven nights from 2nd to 8th June 2026.

Table 6: Summary of the static bat detector surveys late-April/May 2026 Survey – 6 nights of activity

Species	Scientific name	Passes Detector 1	Passes Detector 2
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	320	152
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	37	31
Daubenton's bat	<i>Myotis daubentonii</i>	14	-
Whiskered bat	<i>Myotis mystacinus</i>	2	-
Leisler's bat	<i>Nyctalus leisleri</i>	-	12
Brown long-eared bat	<i>Plecotus auritus</i>	1	1
Natterer's bat	<i>Myotis nattereri</i>	-	-

Again, common pipistrelle and soprano pipistrelle were the most abundantly recorded bat species (peak counts of 152 and 31 respectively), but the number of passes recorded was considerably down on the late-April/May survey. There was a similarly low number of other bats species including Leisler's bat (12), Daubenton's bat (14), brown-long-eared (2), and whiskered bat (2).



4.0 Discussion and Conclusions

4.1 Summary of bats using the site

This section will undertake an impact assessment on the bat species recorded on the Site.

Details of the estimated national and county level populations for each species using NPWS Article 17 data¹⁰.

All bats not recorded over the emergence survey, the two walked transect surveys or the two static detector deployments are considered likely absent from the site and can be reasonably discounted from further assessment. This includes lesser horseshoe bat.

Common pipistrelle

The national common pipistrelle population is estimated to be between 1,070,000 - 4,230,000 (NPWS, 2025) across 679 cells across the country, therefore, the county population is estimated to be between 40,972 – 161,973¹¹.

The peak count of common pipistrelle passes was recorded by detector 2¹² with 580 passes (late-April/May 2026). This represents 1.4 – 0.36% of the county population and a negligible proportion (0.14%) of the national population. Therefore, common pipistrelle are evaluated as being important on a **county level**.

Soprano pipistrelle

The national soprano pipistrelle population is estimated to be between 1,204,800 – 2,709,600 (NPWS, 2025) across 692 cells across the country, therefore, the county population is estimated to be between 20,139 - 48,333.

The peak count of soprano pipistrelle passes was recorded by detector 2 with 418 passes. This represents 0.9 - 2% of the county population and a negligible proportion (0.04%) of the national population. Therefore, soprano pipistrelle are evaluated as being important on a **county level**.

Leisler's bat

The national Leisler's bat population is estimated to be between 112,800 – 202,300 (NPWS, 2025) across 576 cells across the country, therefore, the county population is estimated to be between 5,100 – 9,130.

The peak count of Leisler's bat passes was recorded by detector 1 with 86 passes (late-April/May 2026). This represents 1.7 – 0.94% of the county population and a negligible proportion (0.008%) of the national population. Therefore, common pipistrelle are evaluated as being important on a **county level**.

Daubenton's bat

The national Daubenton's bat population is estimated to be between 55,200 – 76,500 (NPWS, 2025) across 554 cells across the country, therefore, the county population is estimated to be between 2,600 – 3,600.

The peak count of Daubenton's bat passes was recorded by detector 2 with 14 passes (late-April/May 2026). This represents 0.55 – 0.11% of the county population and a negligible

¹⁰ <https://www.npws.ie/sites/default/files/publications/pdf/article-17-report-2025-volume-3.pdf>

¹¹ 1,070,000 – 4,230,000 [national common pipistrelle population] divided by 679 (total no. of cells recorded), multiplied by 26 [total number of cells this species is recorded in Co. Cavan].

¹² Peak count used rather than combining total from detectors 1 and 2 to avoid repeat recordings.



proportion (0.02%) of the national population. Therefore, common pipistrelle are evaluated as being important on a **local level**.

The low activity and number of passes for the other bat species is so low that they can be considered to be infrequently present on the Site and they can only be important at the **local level**.

4.2 Proposed Mitigation and Enhancement Measures

There will be a reduction of suitable commuting and foraging habitat in the form of scrub and woodland removal which will adversely affect bats through a reduction in their populations in the short- to medium-term.

However, it has been established that the level of bat activity across the Site is low and only the common bat species of common pipistrelle and soprano pipistrelle utilising the Site with any frequency. The bat surveys found that there were no trees with potential roost features and so the proposed quarry extension may also will not result in the loss of potential bat roosting habitat the woodland habitat and there will be no significant effect on the overall bat population on the Site or in the surrounding areas. in the form of woodland removal.

The proposed development also has the potential to interfere with bat populations and bat habitat bordering the proposed development Site through an increase in the use of artificial lighting during construction and operational phase of the proposed development.

The following mitigation measures are proposed:

- All woody vegetation (i.e. trees and shrubs), along the site boundaries and within the application area, but outside the proposed extraction areas, will be retained.
- The loss of trees and shrubs will be partially compensated by the planting of ca. 1,315 m² of a native woodland mix on the buffer area (i.e. currently pastureland) between the local road to the west of the site and the western boundary of the extraction area. These planting works form part of the landscape and restoration measures for the proposed development, as was detailed on EIAR Figure 2-4 (Landscape and Restoration Plan).
- The retention of the boundary habitats and the compensatory planting will act to retain bat foraging and commuting corridors along the boundaries of the Site to ensure connectivity to similar habitats in the areas surrounding the quarry. This will ensure there is no significant effect on the local bat population from the removal of vegetation in the quarry extension area.
- All external lighting to be installed, including facilitating nighttime working or security lighting, on the site shall be sensitive to the presence of bats in the area. Lighting of the site during construction will be designed in accordance with the following guidance:
 - o Guidance Notes for the Reduction of Obtrusive Light GN01/20 (Institute of Lighting Professionals, 2021)
 - o Bats & Lighting - Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, December 2010)
 - o Guidance Note 8 Bats and artificial lighting (Institute of Lighting Professionals, 2018)

All lighting shall be LED and controlled with photo-cells and time clocks.

During operational phase all artificial lighting should be directed into the Site and away from the tree lines bordering the Site using cowls, shields, or louvres to reduce light spillage. The boundary tree lines and hedgerows will therefore be rendered "dark zones" (<1 lux, as is typical during a moonlit night) to facilitate commuting and foraging bats (Bat Conservation Trust, 2024).



Light emitting diodes (LEDs) will be installed to emit <3 lux (Bat Conservation Ireland, 2011). These emit little or no UV which attracts significantly lower numbers of invertebrates and, therefore, are less impactful on bat species.

Significance of Residual Effects

As detailed above, there may be a short-term, minor displacement to the local bat populations of the bat assemblage recorded on the Site, chiefly to the three species of bats that were recorded in abundance on the Site: common pipistrelle, soprano pipistrelle, and Leisler's bat. There will be no impacts to roosting bats given that all the trees surveyed did not have suitable bat roosting feature.

Overall, due to the very low levels of bat activity found during the April and June 2026 walked transect and static detector bat surveys the proposed development will not have a significant effect on the bat population within the Site or on the overall local bat population. However, through the implementation of the mitigation measures detailed above, the bat assemblage will be able to continue to use the Site for foraging and commuting following the completion of the restoration phase and potentially the Site will become more suitable to bats following the establishment of the restored habitats.



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Appendix A Figures

ACP RFI Item 5(b) - Bat Survey Report

**Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan
(ABP-318793-24 P. Ref. 23/169)**

P&S Civil Works Ltd.

SLR Project No.: 501.066157.00001

12 June 2026

NOTES

- 1. Base Mapping: OpenStreetMap © (www.openstreetmap.org/copyright)
- 2. CYAL50316488 © Ordnance Survey Ireland/Government of Ireland.

LEGEND

- Bat Detector Locations
- Site Outline



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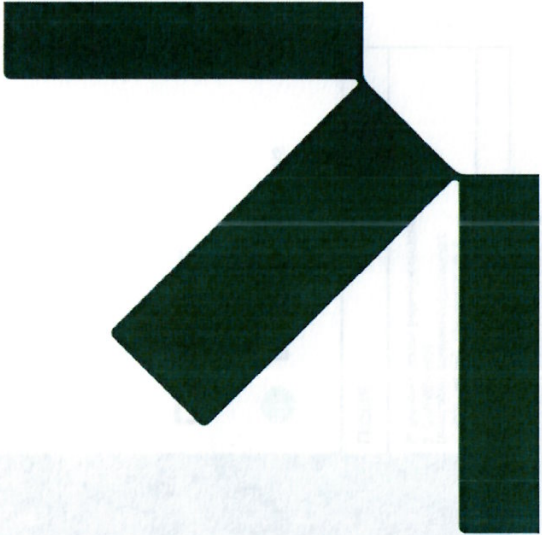
P&S CIVILS WORKS LTD.
ENVIRONMENTAL IMPACT ASSESSMENT REPORT
QUARRY AT MULLYMAGOWAN,
STRADONE, CO. CAVAN

April and June 2026 Bat
Detector Locations

FIGURE 1

Scale
1:50000 @ A3

Date
JUNE 2026



Appendix B Criteria for Assessing Habitat Risk for Bats

ACP RFI Item 5(b) - Bat Survey Report

**Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan
(ABP-318793-24 P. Ref. 23/169)**

P&S Civil Works Ltd.

SLR Project No.: 501.066157.00001

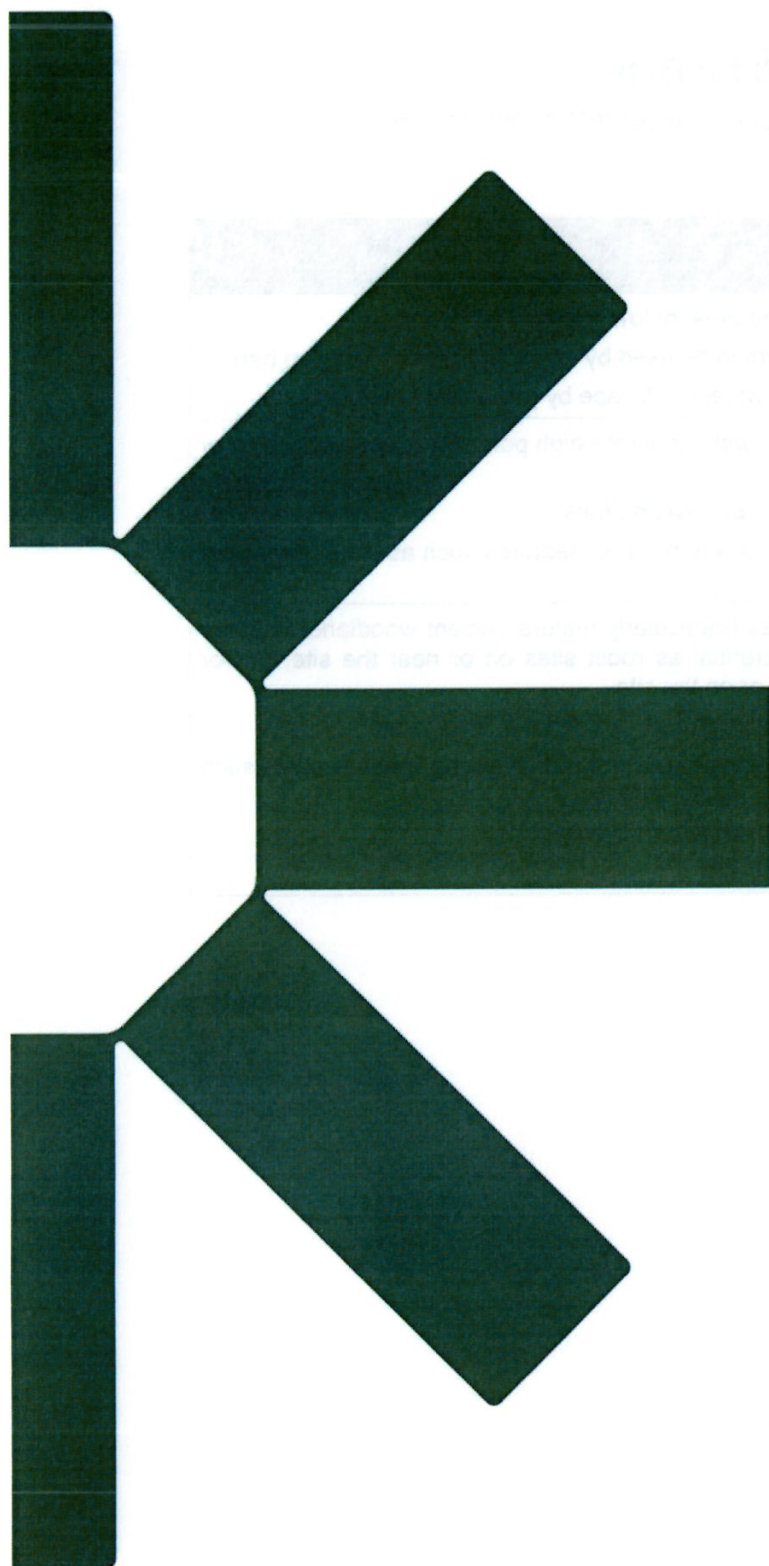
12 June 2026

Criteria for Assessing Habitat Risk for Bats

Table B 1 was taken from the latest NatureScot guidance^{Error! Bookmark not defined.}

Table B 1: Bat Habitat Risk

Habitat Risk	Description
Low	• Small number of potential roost features, of low quality • Low quality foraging habitat that could be used by small numbers of foraging bats • Isolated site not connected to the wider landscape by prominent linear features
Moderate	• Buildings, trees or other structures with moderate-high potential as roosts sites on or near the site • Habitats could be used extensively by foraging bats • Site is connected to the wider landscape by linear features such as scrub, tree lines and streams
High	• Numerous suitable buildings, trees (particularly mature ancient woodland) or other structures with moderate-high potential as roost sites on or near the site, and/or confirmed roosts present close to or on the site • Extensive and diverse habitat mosaic of high quality for foraging bats • Site is connected to the wider landscape by a network of strong linear features such as rivers, blocks of woodland and mature hedgerows • At/near edge of range and/or on an important flyway • Close to key roost and/or swarming site





Appendix J **Environmental Management Plan**

**Further Information Response (ABP-318793-24 P. Ref.
23/169)**

Proposed Quarry Extension at Mullymagowan Townland, Stradone, Co. Cavan

P&S Civil Works Ltd.

SLR Project No.: 501.064821.00001

11 June 2026

ENVIRONMENTAL MANAGEMENT SYSTEM

P&S Civils Ltd Quarry Development at Mullymagowan



Date:	09/06/26	Rev No:	1
Author:	John O Grady	Doc No	EMS-001-00

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Revision History

Rev	Date	Description of Revision or Addition:
0	20/04/26	Draft for review
1	09/06/2026	Final Working Draft

1. INTRODUCTION

This document describes the Environmental Management System that is in place regarding environmental controls at Mullymagowan Quarry under the control of P&S Civils Ltd T/A Cleantech Civils Ltd. It identifies specific measures designed to control and mitigate against potential environmental effects and to ensure works are compliant with the requirements of planning authorities, agreements with Landowners, and other technical or legal requirements.

P&S Civils are a local business first founded in 1968. P&S Civils have significant experience in civil works and quarry management and are ISO14001 accredited, ensuring our environmental management systems are comprehensive and capable of maintaining adequate controls for all identified environmental aspects.

It is the intention of P&S Civils that the Quarry will be managed to the highest possible environmental standard. The purpose of this EMS is to set out how P&S Civils will its operations to avoid any potential environmental impacts. Throughout the duration of the operation of the quarry the Environmental Management System is updated and reviewed, as necessary, to ensure that it remains compliant with current legislation.

The quarry will produce stone and aggregates suitable to support the construction industry in Ireland. Annually it is expected that the quarry will produce 250,000T of rock per annum. This will continue over a 15-year period until the mineral resource of the quarry is exhausted. Subsequently the quarry will be restored over the following 2-year period.

2. LOCATION

The address of the quarry is Mullymagowan, Stradone, Co. Cavan. The Quarry is located in a rural area along the R165 road running southeast from the N3 Dublin to Cavan Road. The quarry is approx. 4.5km south of Stradone Village. Local landuse is predominantly rural with an active hard rock quarry 1.4km southwest. Figure 1 below shows the existing boundary surrounding the quarry and the red line boundary on a 4.9Ha area planned for development through extension of the existing quarry.

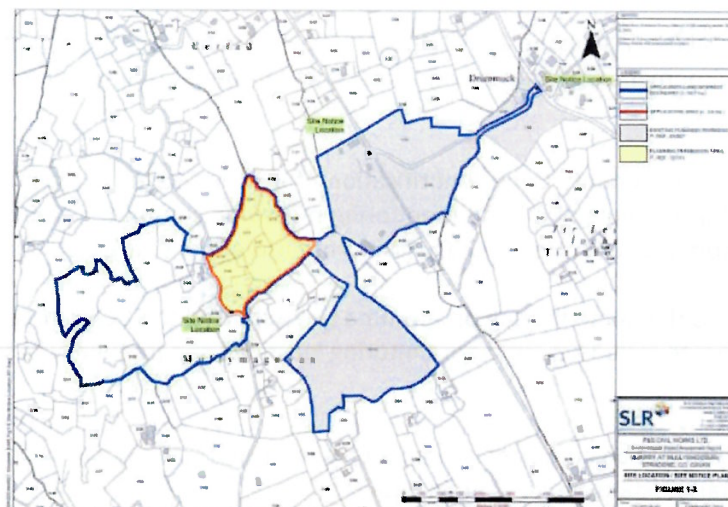


Figure 1 showing the boundary surrounding the quarry.

The quarry is located 1km east of the N3 road connecting Cavan & Dublin and approx. 4.5km south of Stradone Village. Access to the quarry is via the Haul Road from the R165. As per Condition 28 of the Cavan County Council notification of decision to grant planning permission (Ref. 23/169) – vehicles will not access the quarry via the L3500 Road. P&S Civils will ensure that signs are in place and all persons working at the quarry & hauliers are aware of this restriction.



Figure 2 showing the haul road allowing access to the quarry via the R165 road.

3. ENVIRONMENTAL MANAGEMENT

An Environmental Impact Assessment Report (EIAR) was submitted with the planning application for quarry extension (P. Ref. 23/169), which also considered the main quarry processing area permitted under P. Ref. 07/827. The mitigation measures identified in the EIAR form the basis of the environmental management procedures to be implemented across the Mullymagowan Quarry operations. The measures/procedures will be reviewed and updated as appropriate and in response to results of monitoring at the quarry.

P&S Civils Senior Management takes responsibility for the operation of the Quarry to Environmental Standards. Declan Smith will assume the role of Quarry Manager and will take responsibility for implementation of the EMS during operation.

Declan can be contacted via phone (0872791233) or via email (dsmith@cleantech-group.com) in relation to any environmental queries, complaints or other inquiries about the management of the quarry.

Condition 7 of the Cavan County Council notification of decision to grant planning permission (Ref. 23/169) requires that the mitigation and monitoring measures committed to in the EIAR be clearly compiled into a report and submitted to CCC within 3 months of the final grant of planning permission.

Condition 11 requires that a monitoring programme be submitted to CCC prior to commencement of the quarry extension, to include sampling/monitoring locations and frequency of same indicated on a site layout map.

Condition 17 requires that an annual environmental audit report be submitted to CCC during the life of the proposed quarry extension, to contain details of:

- An annual topographical survey showing all areas excavated and restored, with a full materials

balance determined on the basis of the survey

- A full record of any breaches over the previous year for noise, dust and water quality
- A written record of all complaints, including actions taken on each complaint.

Condition 18 requires quarterly reports to be submitted to CCC with full monitoring records of dust monitoring, noise monitoring, surface water quality monitoring and groundwater monitoring. Any exceedances of noise or dust beyond agreed limits, and any incidents of surface or groundwater pollution must be communicated to CCC immediately.

3.1 Protection of Watercourses

The onsite water management and processing infrastructure will be regularly inspected and maintained.

Pollution that enters the water environment can affect users such as farmers, industry and drinking water abstractions. In Ireland, public drinking water supplies come from rivers and groundwater so we must protect them from pollution.

Surface waters include rivers, lakes, reservoirs, ponds, streams, canals, ditches, including those that are temporarily dry, estuaries and coastal waters up to three miles offshore.

Silt and oil are the most common construction site pollutants to water. Any pollutants getting into drains can end up in a river even if it is miles away from site and can be traced back to their source. Surface water and ground water have legal protection. It is an offence to pollute it.

The landholding for the Quarry is located within the Erne River Catchment Area specifically within the Laragh Sub Catchment. Under the Water Framework Directive both are of good status.

There is an existing discharge point onsite allowing water to be released to the west of the main quarry area. The water is released to the Mullymagowan Stream, which flows through Corfad Lake and ultimately joins with the Stradone River downstream of the site.

Water samples collected from the discharge point, a point further downstream on Mullymagowan Stream and the Flooded Quarry Void were collected in February 2024, and generally reflect good water quality. They provide a baseline against which further monitoring can be compared.

Surface Water - Potential Impacts

Potential impacts on the local hydrological environment associated with the quarry operations include:

- Increased surface water run-off resulting from exposed ground.
- Increase in suspended solids entering hydrological environment resulting from excavations, stock piling and processing of materials.
- Spillage and pollutant incidents from plant and machinery working onsite. Contaminants could include oil, fuel, cement, concrete, sediment laden run off, metals, chemicals)

Surface Water Management

P&S Civils will maintain a discharge license (Ref. SS/W005/11) approved by Cavan County Council to allow for management of surface water accumulating within the quarry. Condition 10 of the Cavan

County Council notification of decision to grant planning permission (Ref. 23/169) requires an application to be made for a review of this licence should the quarry extension proposed under that planning reference be progressed.

The surface water management system at the quarry follows the requirements of Condition 20 of the Cavan County Council notification of decision to grant planning permission (Ref. 23/169). 4" Sump Pumps are used to pump water from the quarry floor to existing settlement lagoons for use as top up water supply at the washing plant north of the existing quarry void. Water is then pumped to the settlement tank and sand washing plant before final discharge to adjacent channel. Silt generated from the settlement lagoons is used for restoration of the overall site.

The following activities are undertaken at the site to protect surface water features:

- Diversion of water inflows away from the extraction area.
- Treatment of water onsite to ensure water has no significant impact
- Discharge of water via the designated discharge point (SS/W005/11)
- Monitoring of groundwater and surface water as described below.

Inclement Weather

During periods of heavy rainfall or snowfall (where frozen water will later thaw and be released) visual inspections are conducted to check whether additional measures are required to ensure the excess water is effectively managed.

During periods of exceptional rainfall, machinery cease works temporarily to minimize the damage to open ground and minimize heavily silted runoff which may overpower drainage systems.

Wastewater Systems

Site staff will use existing toilet, hand washing and welfare facilities provided onsite. The wastewater from the administration building is diverted to an existing septic tank and percolation area located near the car park at the quarry entrance. There has been no issue with this system to date.

Wheelwash

In accordance with Condition 19 of the Cavan County Council notification of decision to grant planning permission (Ref. 23/169), there is currently a wheelwash present at the site, located within the main site entrance gates and adjacent to the weighbridge. The surrounding area is hard surfaced. All vehicles leaving site must pass through the Wheelwash to prevent excessive dust transferring to road networks.

The water used in the Wheelwash can be recycled through the production facilities onsite once the contents in the Wheelwash have been allowed to settle. This reduces overall water consumption within the quarry during operation.

Surface Water Quality Monitoring

- Visual inspection of surface water management features e.g., drainage is undertaken weekly by the quarry manager, to establish if there has been increased erosion or deposition of

sediment.

- Water quality will be monitored by the quarry manager. The results of each visual inspection will be recorded.
- A flow meter will be installed at the discharge point to control and monitor water volumes discharged during operational phase.
- Water samples will be taken at the discharge point and a location downstream on Mullymagowan Stream and from the quarry sump on a monthly basis All 3x samples will be tested for a standard surface water quality suite.
- Discharge limit as per council discharge license Ref No SS/W005/11 and any subsequent review

Groundwater – Potential Impacts

The potential impacts have been determined as:

- Pollution from plant and machinery
- Contamination of soil/ groundwater.
- Erosion and sedimentation: from quarry operations and traffic.
- Water quality: accidental impacts caused by pollution.
- Alteration to natural drainage patterns around quarry works.
- Increased run-off due to soil compaction by machinery.
- Increased infiltration and release of naturally occurring elements.

Groundwater Management

Methods of protection are detailed below:

- Any fines (silt/clay) washed off the quarry floor settle in the sump and buildup of fines in the collection sumps are periodically removed to avoid them entering the groundwater or causing any significant decrease in sump capacity. Removed fines/silt materials are then stored for use in restoration works in the quarry.
- A large spill kit is located in the maintenance shed and on board all mobile plant.
- Oil and chemical storage is located in bunded areas near to the concrete batching plant.
- Limited maintenance of plant or machinery is undertaken at the site, and where this is required it will be completed in the existing maintenance shed where possible.
- All chemical and oil kept onsite is maintained on bunded storage areas.
- All bunds onsite will be checked on a weekly basis to ensure no excessive accumulation of water.
- All bunds will be tested for integrity on an annual basis.
- A record of all visual inspections and integrity tests will be maintained and kept onsite.
- Lowest working quarry depth of 110m AOD

Groundwater Monitoring

The quarry extension will initially be worked dry above the water table and thereafter through the use of pumps within the quarry void after the groundwater table has been intercepted.

Groundwater level and quality monitoring will be carried out during the construction and operational stages. This will allow for groundwater quality sampling (quarterly) and groundwater level data (continuous or monthly) to be collected from the proposed development site. In accordance with Condition 14 of the Cavan County Council notification of decision to grant planning permission (Ref. 23/169), should any adverse impacts to water supply sources be attributed to the quarry extension works P&S Civil Works Ltd will ensure immediate mitigation.

Any additional groundwater monitoring requirements will be agreed with Cavan Co. Co. prior to the commencement of any operations on site.

Chemical, Fuel and Oil Storage

Chemicals stored onsite include lubrication oil, hydraulic oil and diesel fuel. Fuel is required for some plant and machinery onsite. All plant used to transport crushed rock, other materials and staff shall be refueled off site.

Refueling on the quarry floor is generally not permitted. Where it is required (for example on immobile crushing equipment), a small fuel bowser mounted on an all-wheel-drive ruck will be used. The tank on the bowser shall be divided into separate, independent, small compartments. Fuel shall be delivered to the less mobile plant by a vacuum pump powered by the truck engine, via a delivery meter, 'full tank' sensor stop valve and a pistol grip filter nozzle in order to prevent over filling and accidental spillage of fuel on the open limestone surface.

A designated refueling and maintenance point is located on hardstanding at the processing area from which discharge will pass through a petrol/oil bypass interceptor before discharge to ground waters, In accordance with Condition 12 of the Cavan County Council notification of decision to grant planning permission (Ref. 23/169), only plant to be wholly operated within the quarry may be refueled on-site. Emergency repairs of immobilized plant at the quarry floor, if needed, will be carried out with the use of appropriate drip trays and oil catcher tanks to drain hydraulic, or oil lubrication, systems.

All fuels, oils, lubricants and other chemicals onsite will be appropriately stored in bunded areas and labelled to ensure contents are clear. A database of Safety Data Sheets (SDSs) will also be maintained and made available onsite. Additionally, SDS sheets for all chemicals will be posted on the noticeboard within the control room. Bunding shall be impermeable and capable of retaining a volume equal to 1.5 times the capacity of the largest tank.

Spill kits will be kept available onsite near Control Of Substances Hazardous to Health (COSHH) stores and at the refueling point. Training on use of spill kits will be provided to all staff.

Waste chemicals and fuel will be disposed of appropriately by a licensed contractor and a record of all waste removed from site will be maintained. Chemicals/Fuel will not be allowed to accumulate onsite.

Any chemical or fuel leak/spill onsite will be treated like an incident onsite. Emergency procedures as detailed below will be implemented and the occurrence will be recorded.

3.2 Nuisance

Sources of Nuisances and Potential Impacts

The primary potential sources of nuisance associated with the quarry operations are Dust, Noise, Vibration and Light. Receptors around the site are relatively distant and impact is expected to be low. P&S Civils T/A Cleantech Civils will ensure comprehensive monitoring to provide continuous verification.

The quarry site is effectively secured at all times with appropriate warning signage as per the requirements of Condition 26 of the Cavan County Council notification of decision to grant planning permission (Ref. 23/169).

Mitigation Measures & Monitoring

The following measures are implemented on site to ensure that nuisances associated with quarry activities are kept to a minimum.

The Quarry Manager will be responsible for handling enquiries and complaints regarding all on-site works. All complaints which can be made via email to dsmith@cleantech-group.com or via phone on 0872791233 these complaints will be thoroughly investigated, and appropriate mitigation will be implemented, within an appropriate period not exceeding what is reasonable and practicable usually within 7 working days.

Dust and Cleanliness of Site

Internal haul Road and access are kept clean and swept as necessary to keep them free of loose materials and the Quarry working areas are maintained in a tidy condition. The wheel wash is located at the entrance to the quarry to ensure Vehicles exiting the Quarry are not unnecessarily carrying debris onto the local public road network.

Precautions undertaken to minimize dust include:

- Processing of rock on quarry floor in close proximity to the working face to reduce movement and therefore generate less dust.
- Wheel wash is situated near entrance to site. The wheel wash has been designed so that water within the wheelwash can be recycled and reused onsite to reduce usage.
- Sprinklers can be used during dry weather to reduce dust generated during operations.
- Screening berms are located and planted along boundaries of quarry workings prior to excavation.
- Excavated soil used as soon as possible in creation of screening berms.
- Screening berms will be vegetated as soon as is reasonably practicable.
- Drop heights minimized when handling materials and such activities avoided in windy conditions.

- Reduced speed limit of 10km/h on internal access routes reduces dust lift. All drivers and employees onsite will be briefed on reducing speeds on local roads to reduce dust lift on this during site induction.
- Water Sprays will be used to minimize dust generation while handling.
- A monthly survey and monitoring programme will be undertaken in accordance with Condition 15(b) of the Cavan County Council notification of decision to grant planning permission (Ref. 23/169) requires

Noise Management

To minimize noise impacts on sensitive receptors P&S Civils will implement the following measures:

Onsite:

- Existing perimeter hedgerows and vegetation are retained to function as acoustic barriers.
- Screening berms provided on the northern and western sides of the quarry function as acoustic barriers and will be retained.
- All machinery used at the development have noise emission levels that comply with the limiting levels defined in EC Directive 86/662/EEC and any subsequent amendments.
- All machinery and vehicles are properly maintained and operated according to the manufacturers' recommendations, in such a manner as to avoid causing excessive noise.
- All machinery and vehicles are fitted with effective exhaust silencers which are maintained in good working order to meet manufacturers' noise rating levels.
- Care is taken when unloading vehicles to reduce or minimize potential disturbance.

Traffic

- The site access and internal roads are kept clean and maintained in a good state of repair, i.e., any potholes are filled, and large bumps removed, to avoid unwanted rattle and "body-slap" from heavy goods vehicles.
- Any vehicles waiting within the site are prohibited from leaving their engines running and there should be no unnecessary revving of engines.
- Close liaison is maintained with nearby residents to ensure that they are aware of the timing and duration of activities.
- Activities are confined to 0700–1800hrs Monday to Friday and 0700–1400hrs on Saturdays. If out of hours working is required, this is subject to agreement with Cavan County Council

Noise Monitoring

- Noise monitoring is undertaken quarterly by P&S Civils. Daytime noise limits for Mullymagowan Quarry are set at LAeq55dBA.
- All Noise Monitoring will be completed and recorded using a calibrated noise Monitor.
- Noise Monitoring Results will be recorded and a report kept onsite.
- Predicted noise generated is expected to be well within the EPA Guidance levels.
- 5x Noise Monitoring Locations around the site have been established during the EIA of the proposed quarry extension.

Vibration

The potential for vibration impacts from blasting activities have been assessed. Historical blast monitoring results at the existing quarry confirm that blasting operations there have complied with the national government and EPA limits.

- Nearby residents will be notified in advance of blasting activities and in accordance with Condition 21(b) of the Cavan County Council notification of decision to grant planning permission (Ref. 23/169). Works will be conducted during agreed hours of work.
- Potentially vibration causing activities will be substituted by less intrusive plant and/or methods of working where possible to do so.
- Vibration monitoring will be conducted during blasting works should the need for blasting arise.
- 2x Vibration Monitoring Points have been designated V1 & V2.
- Monitoring of blasts (both for groundborne vibration and air overpressure) has been and will continue to be carried out at the site. The blast monitoring results will continue to be submitted to Cavan County Council on a regular basis for record purposes.

Light

When Site/Task lighting is required, the following measures are adopted to ensure the negative impacts of light pollution are minimized:

- Task lighting is only to be used at the location where it is required.
- Task lights are pointed downwards onto the area of work.

Archaeology

In accordance with Condition 24 of the Cavan County Council notification of decision to grant planning permission (Ref. 23/169), a qualified archaeologist will be commissioned to monitor all site stripping activities.

3.3 Waste Management

The quarry waste management policy is guided by the following principles of the waste management hierarchy:

Reduce: The prevention or minimization of waste production when undertaking any activity.

Reuse: The reuse for the same purpose of a used product or material with minimal (if any) processing (e.g., used equipment, reusable packaging, wood,)

Recycle: The use for the same or different purpose of a used product or material which requires processing (e.g., scrap metal, waste oil, paper, cardboard, plastic etc.).

The quarry manager – Declan Smith – takes responsibility for ensuring any waste generated onsite is managed and disposed of in an appropriate manner.

Waste Management Onsite:

- All waste generated onsite will be segregated and stored in a suitable safe location onsite.
- All waste generated will be stored away from environmental receptors present onsite or near to the site.
- All containers for storing waste (skips, collection bins etc) will be labelled.
- All bins and skips onsite will be emptied on a regular basis to prevent overflowing or debris blowing around site.
- A waste register will be maintained documenting all waste taken from the site.
- Approved waste contractors and hauliers will be used. All collection permits and waste facility permits and licenses will be recorded.

Non-Hazardous Waste

The following types of non-hazardous waste are generated on site:

- Timber.
- Metal.
- General domestic style waste from e.g., canteen facilities, boxes, and packaging as well as general office wastepaper etc. is collected fortnightly.

Waste Contractors

- All removal of waste from site must be performed by a competent Waste and or Recycling Company see below list of Waste/Recycling handling contractors utilized by P&S Civils T/A Cleantech Civils. Details of waste collected are kept on file onsite in the Site office.

General Waste/Recycling generated onsite is managed by Wilton Recycling.

Wastewater/Sanitary Facilities is managed by the on-septic tank and percolation system.

Waste Oil is collected periodically by ENVA.

Scrap Metals/Batteries are disposed of by Wilton Recycling.

Hazardous Waste

The following hazardous waste streams are generated on site:

- Batteries.
- Hydraulic hoses/mechanical parts.
- Fuel.
- Oil.
- Wastewater.
- Septic Tank Waste.

3.4 Resource Use

Identified Onsite Resources

Listed below is a list of resources that are used during the operation of the site.

Fuel consumption - plant machinery/ vehicles and staff vehicles are used on site which all require the use of fuel e.g., petrol or diesel.

Construction material use- use of construction materials such as timber, metal, and concrete for provision of roadways and storage areas within site.

Water Treatment – Existing facilities onsite allow for the management and treatment of surface water and waste water onsite.

Onsite Reduction in Resource Use

Fuel consumption

- Reduced speed limits are imposed on site reducing the amount of fuel that is used by plant and vehicles.
- Plant/ vehicles/ machinery are powered down when not in use.
- Constant review of staff working methods and access to appropriate training to ensure optimum fuel efficiency for specific tasks. All plant operators are fully trained and competent operators i.e., CPCs and QSCS training is periodically provided.

Construction material use

Implementation of a waste hierarchy is enforced on site. This reduces in the first instance the amount of material that is brought onto the site. Once materials are brought on site as much as reasonably possible, they are reused, thereby reducing the need to source new materials. Where these cannot be re-used, they are segregated into separate waste skips and recycled.

4.0 Ecology – Protect of Flora and Fauna Onsite.

P&S Civils T/A Cleantech Civils have identified the following ecological features of importance within the Mullymagowan Quarry Site:

- **Sand Martins** (Amber Listed on the BoCCI list. Sand Martins use sand faces to make nests onsite. Sand Martin Nests are visibly present on bare stockpiles near the aggregate washing plant and north of the existing quarry void there are potential nesting areas. To ensure sand martins are protected onsite the following control measures will be implemented:
 - Existing established sand martin nests in stockpiles near the aggregate washing plant and quarry void will be fenced off and protected to prevent disturbance.
 - Additional habitat for further nesting can be provided in the area indicated in Figure 3 below.



Figure 3 showing the area at western corner of site to be developed to accommodate sand martin nests.

- **Bats** are protected under the Wildlife Acts 1976 & Habitats Directive. While ecological surveys have not found that bats roost onsite the area may potentially provide potential foraging opportunities for bats. To ensure minimal impact the following control measures will be maintained onsite:
 - Trees and potential roosting areas around the site boundary will be maintained.
 - No quarry operations will be undertaken during night time hours.
 - Prior to any tree felling within operation areas a potential roosting feature (PRF) survey will be undertaken.
 - If bats are found no tree felling will take place and a derogation licence has been applied for and granted.

5.0 ACCIDENT PREVENTION & EMERGENCY RESPONSE

All occurrences onsite where an adverse outcome could occur must be reported immediately and managed in the best way possible to prevent/minimize damage or injury.

P&S Civils T/A Cleantech Civils will include information on accident prevention and emergency response in the Site Induction for the Quarry.

Emergency response will be notified as per Figure 4 below.

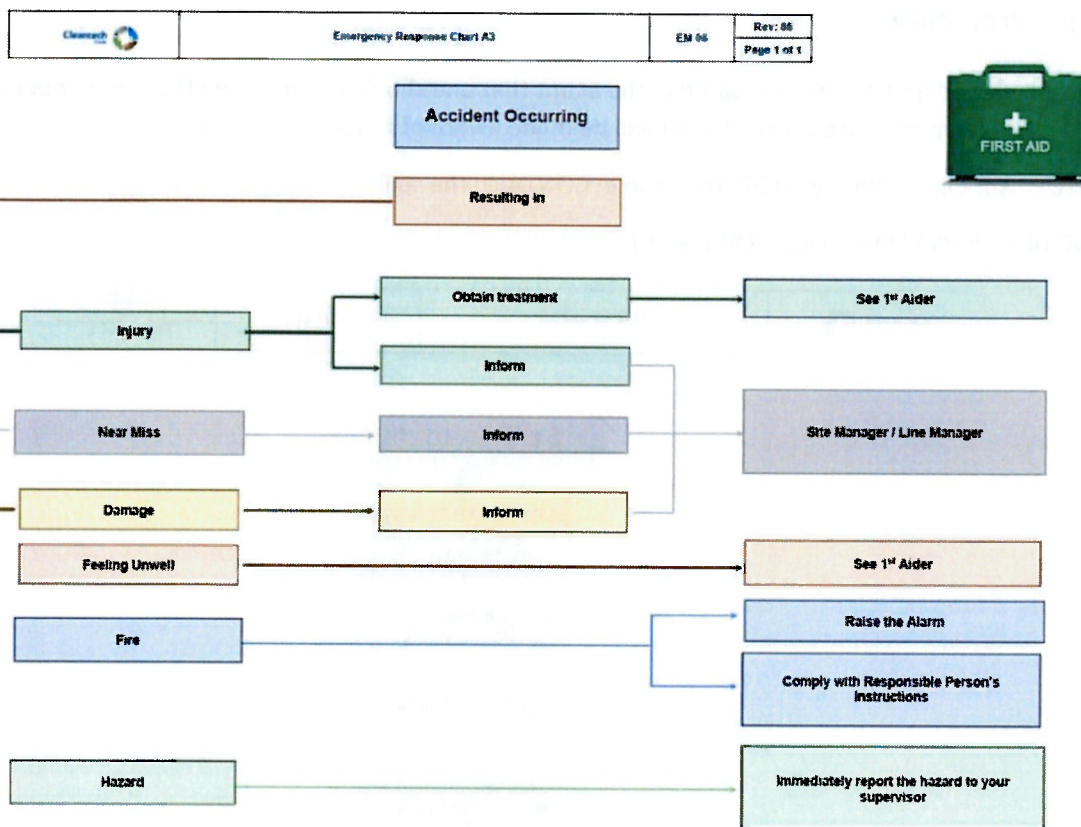


Figure 4 showing the emergency response chart for P&S Civils T/A Cleantech Civils.

5.1 Spill Management

Prevention

The primary method of spill management is prevention; therefore, the following prevention methods are adopted on site.

- No pumping or release of water into any body of surface water
- When using oil and fuel on-site, steps shall be taken to ensure that containers cannot be knocked over, jostled or damaged.
- Upon completion of works or at the end of the working day oils will be returned to the bunded hard standing storage area for ongoing storage
- Plant is CE certified, adequately maintained and in good condition with no leaks evident.
- Large static plant if required shall be double skinned, i.e., have built in secondary containment.
- Machinery/plant will refuel in the designated refueling area.
- Refueling is conducted by a competent operative.
- The maintenance shed which is located to the west of the application site is the storage location for oil/lubricants. Oil drums are stored on drip trays within the shed and waste oils are stored in a tank on safety tested bunds as shown below, until collected by an authorized contractor.

Spill Procedure

A spill procedure has been prepared in the event that one should occur during the quarry operations. The detailed procedure which all staff will be made aware of is detailed below.

STOP: work immediately; STOP: the source; CONTAIN: the spill .

NOTIFY: Declan Smith (Quarry Manager)

	Spill Response	EM 11	Rev.00
			Page 1 of 1

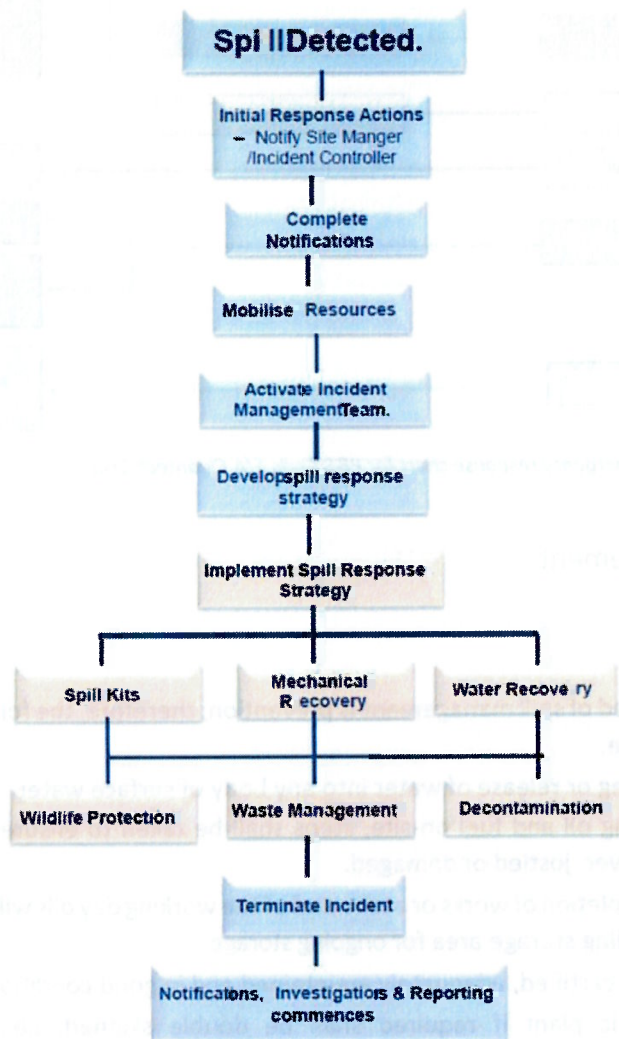


Figure 5 showing the Spill Response Procedure for the site.

Spill Kits

A large, wheeled spill kit is located adjacent to the oil storage in the storage/maintenance shed and in the refueling Area. Also, all mobile plant and equipment have a mobile spill kit for rapid response in case of machine failure resulting in oil leakage.

Refuelling

To prevent spillage of fuel during refueling the following procedure is to be followed:

- Refueling is only to be carried out by competent persons.
- Refueling to occur on the concrete hard standing refueling area provided which drains directly to the hydrocarbon interceptor.
- All plant is turned off before they can be refueled.
- All mobile fuel bowsters must be double skinned and bunded and located away from heavy traffic, drain etc.;
- All fuel bowsters shall carry a stock of absorbent pads and granules for dealing with spillages.
- Drip pans or absorbent pads shall be used under all hose and pipe connections and other leak-prone areas during refueling operations.
- Refueling operations are never to be left unattended.
- Diesel will not be stored on-site; a mobile double skinned bowser will visit site and refuel all tracked vehicles.
- Deliveries are authorized by site management, be undertaken during working hours, and supervised by a designated person.
- Checks are made that all valves are properly set so that during delivery no leaks can occur.

5.2 ENVIRONMENTAL EMERGENCY RESPONSE PLAN (ERP)

Person discovering the spill must raise the alarm immediately:

- Minor spills will be dealt with by any competent member of staff with the use of the absorbent material.
- Clean up as much of the spill as possible using the absorbent spills materials if safe to do so. If unsure or concerned contact the supervisor who will deploy as required to manage the spill.
- All contaminated absorbent material will be appropriately bagged and taken to the waste storage area for disposal in the appropriate hazardous waste drum. – DO NOT PUT THE BAGGED MATERIAL INTO THE SPILL KIT. Used absorbent material is to be disposed of by the relevant waste handling contractor.

Emergency Pollution to Air Event

Emergency pollution Event to Air

- LOCATE the source of the air pollution.
- If safe to do so, STOP the source of the pollution, for example by turning off faulty equipment. Do not expose yourself to any dust or vapors without the appropriate PPE.
- STOP any works which are in the vicinity of the pollution event, make sure all site staff and members of public are diverted away from the pollution event.
- SUPPRESS particulate air pollution with water but only if you can control the runoff such that the water will not enter any drains or watercourses.
- REPORT the incident to the Quarry manager who will then determine if the event is serious enough to require notification to the Local Authority.
- REVIEW the cause of the pollution event to determine any actions required to prevent the

incident from recurring. Review the effectiveness of the response plan and make any changes necessary.

Emergency Pollution to Land and Water Event

Land

Land Pollution response is as per Spill Response procedure.

Watercourses

Water course response

- check watercourses during periods of high rainfall or activities with potential for significant run-off.
- Get the HELP you require to deal with the situation safely and inform Quarry Manager of the silting or contamination.
- Implement mitigation measures immediately. Trace back to the source where possible.
- Consider whether the site activity should be halted.
- Prevent further spread of sediment downstream by implementing straw bales, silt screens etc. to help control sediment immediately. If already in place check for signs of damage.
- Monitor the effectiveness of protection measures daily and re-plan, as necessary.
- Cavan County Council must be contacted should pollution from site enter the surface water or foul drainage system.
- Review event to determine any actions required to prevent the incident from recurring.
- Review the effectiveness of the response plan and make any changes necessary.

APPENDIX 1 – Environmental Risk Assessment.

Activity / Aspects	Impacts	Initial Assessment			Controls	Assessment			Okay to Proceed Y/N
		S	L	Score		S	L	Score	
Use following method for quantifying level of risk - S x L = Severity x Likelihood									
Waste Handling & Disposal	Impact - Wasting excess quantities of raw materials - Storing and handling of waste badly leading to environmental impairment (odours etc) - Disposing of too much waste to landfill - Attraction of pests - Groundwater/ Surface water contamination - Ground contamination - Incorrect waste segregation - In correct un approved disposal	4	4	16	• All waste handled in accordance with Waste Management Act, 1996 to 2003 and all Regulations and Bye-Laws made thereunder, where material is to be disposed of off site. • The policy of reduce, reuse, recycle will be put into practice wherever possible • Waste is classified using the European waste catalogue (EWC) & broadly classified into inert, non-hazardous, or hazardous, in accordance with Council Decision 2003/33/EC and Directive 1999/31/EC • Each waste & haulier contractor is required to present a permit prior to being allowed remove waste from the site. The Site Manager will ensure that the waste carrier is authorised to carry the type of waste intended to be taken from site by waste licences held in the site folder. • The Project Manager will maintain records of all skips/waste taken off-site using the waste management plan record sheets • Waste transfer slips will be maintained for hazardous waste. Hazardous waste will be handled in accordance with best practice. examples of hazardous waste is asbestos containing pipelines, contaminated soils, lubricants or bituminous materials • All subcontractors will adhere to the waste minimisation measures • All loads transported to a storage facility/disposal, (or land spreading), will be traceable with documentation on source, interim storage and final destination to back up all movements. • Before Works commences Cleantech shall identify the waste disposal facilities that we proposes to use and provide copies of the Waste License, Permit, Certificate of Registration (whichever applies). • The disposal of any redundant asbestos cement pipe or pipe burst material shall be managed as hazardous waste & removed by a specialist haulier. Waste Transfer forms obtained. h. A waste skip area is set up in a prominent location on site, labelled and communicated to all site workers. • All AC cut-outs and waste material (including disposable PPE) shall be double-bagged using suitable Unapproved packaging (minimum 1,000 gauge polythene) and securely sealed with good quality tape (preferably 75mm duct tape), and banded to standard heavy duty pallets. • All packages shall be labelled with asbestos 'a' labels on at least two sides. • Where temporary storage of asbestos-containing waste bags is required on-site (only where it is not reasonably practicable to transfer waste directly to a suitable waste skip) this will be in a dedicated locked room. Appropriate asbestos warning signs should be erected and every bagged surface of the room should be smooth and impervious so as to allow thorough cleaning after the bags have been removed. • Waste reduction is achieved by avoiding surplus materials on site by avoiding over-estimation of purchasing requirements, minimising packaging materials and buying environmentally approved and recycled content products; • Persons receiving materials check to ensure that they are not delivered to site damaged and unusable & a member of the site management team arranges for return if necessary • Where possible a 'take back' system is established with suppliers; • Where possible environmentally approved and recycled content products are purchased • Measures are put in place to limit the amount waste going to landfill by reusing and recycling where possible. • Measures are put in place to ensure all wastes are handled and stored correctly; • All wastes are segregated and labelled appropriately; • Provisions will be made for collection of rubbish from canteens, offices etc.; • Waste will be stored in appropriate containers which take into consideration the physical properties, chemical composition, quantities and hazardous nature of the waste; • Waste containers will be secure to prevent the uncontrolled release of waste and stored in designated areas, with necessary containment and protection measures to prevent uncontrolled releases; and - an Storage and collection provisions will be made for recyclable materials including cardboard, glass, metal, plastic, green waste and other materials. - in Care will be taken to ensure that skips / containers are not overfilled and that wastes cannot be blown away • All wastes must be stored in designated areas, which are isolated from surface drains. • The risk of accidental spillages or leaks will be minimised where possible. • Covers are provided to prevent evaporation and spillage of wastes. • No waste is permitted to be buried or burnt. • Where site constraints do not allow the storage of separate skips all waste is sent for disposal to landfill. • Toolbox talks on this issue to all site personnel. • Each waste contractor is required to present a waste facility licence for all facilities / tips that the company's waste will be delivered to.	2	2	4	Y

Activity / Aspects	Impacts	Initial Assessment			Controls	Assessment			Okay to Proceed Y/N
		S	L	Score		S	L	Score	
Use following method for quantifying level of risk - S x L = Severity x Likelihood									
Transportation of Waste	In correct/unapproved disposal of spoil and waste (including hazardous waste and contaminated spoil) Prosecution for the failure to handle and/or dispose of wastes in line with Waste Management legislation.	4	4	16	- All movement of waste and the use of waste contractors is always undertaken in accordance with the Waste Management Acts 1996 - 2011, Waste Management (Collection Permit) Regulations 2007 and Amendments and Waste Management (Facility Permit & Registration) Regulations 2007 and Amendments. - This includes the requirement for all waste contractors to have a waste collection permit issued by the NWCPO. The Site Manager maintains a copy of all waste collection permits on-site. - A nominated waste contractor will be in place for the duration of the works on this framework. - The waste permit management plan Env01 is used to control waste collection permits. - If waste is being transported to another site, a copy of the Local Authority waste COR/permit or EPA Waste/IED Licence for that site is always provided to the Site Manager. If the waste is being shipped abroad, a copy of the Trans frontier Shipping (TFS) notification document is always obtained from DCC (as the relevant authority on behalf of all local authorities in Ireland) and kept on-site along with details of the final destination (COR, permits, licences etc.). - A receipt from the final destination of the material is always kept as part of the on-site waste management records. All information is entered in a waste management recording system maintained on site. - Any areas with hazardous wastes; appropriate wheel wash will be provided - General waste will be collected in roll off skips - Waste coordinator checks that waste transporters have an up to date copy of their waste collection permit in the vehicle - Transportation suppliers are hired in accordance with SOP 05 Purchasing and Suppliers. In addition to the requirements of this procedure; transportation suppliers must provide the following prior to transporting waste on site - Details of any incident - Details of any prosecutions - Main point of contact - Copy of transportation permit.	4	1	4	Y
					- An environmental inspection is carried out weekly by site management. Project Managers also conduct daily QHSE walkthroughs of work activities on site to ensure works are in compliance with method statement risk assessments - All storage tanks are banded to 110% capacity of the tank or double skinned. - Hazardous materials will be kept in lockable stores on site and will be clearly labelled. - Spill kits will be available at these locations. - Operatives will only bring to the works area those materials which they need, and all hazardous materials will be returned to the lockable stores at the end of each working day. - Diesels will be stored in banded storage tanks and spill trays will be used for generators and pumps as required. - Fuels and lubricants shall be carefully handled to avoid spillages. - Waste oils and hydraulic fluids shall be collected in leak proof containers and transported off site for disposal or recycling. - Delivery of fuel to the site will be by approved tanks or mobile re-fuelling tanks. - Delivery may be into on-site mobile re-fuelling tanks or directly into the equipment. - Supply tanks shall be operated by a competent person. - All dispensing or transferring of fuel will be attended for the duration of the operation. The attendant must be aware of proper fuel handling procedures to minimize the risk of a spill and shall continuously scan the area adjacent to the fuelling operation for possible leaks or spills. - The transferring and dispensing of fuel will be done with pumping equipment, an approved hose, and top-fill nozzle. - Ensure that 1m site-appropriate spill containment kit is readily available. - When unreeing the fuel transfer hose and nozzle, the nozzle must be in the upright position. - The nozzle shall be kept clear of the ground when returned to the reel or storage position. - Mobile bowers and fuel tanks on vehicles and equipment are not to be overfilled. - The operation of moving equipment in the immediate area of a fuelling operation shall be suspended. - Welding and/or burning operations within 3 metres must be stopped while fuelling is in progress. - Site Management maintain regular inspections of fuel systems and their components & check for leakage, deterioration, or damage. Smoking will be prohibited in the immediate area of the designated re-fuelling point. - Fire extinguishers will be available near the designated re-fuelling point in the event of a fire. - Combustible materials such as lubricants and greasy or oily rags will be kept separate from the designated re-fuelling point. - All spillages are reported to the Site Engineer who is responsible for investigating spillages and arranging clean-up operations.	4	1	4	Y
Handling & storage of hazardous substances on-site	Contamination of: Ground/soil Surface water Groundwater resulting in reduction in the amenity value of land / water	4	4	16					

Activity / Aspects	Impacts	Initial Assessment		Controls	Assessment				
		S	L		S	L	Score		
Use following method for quantifying level of risk - S x L = Severity x Likelihood									
Handling & storage of hazardous substances & Chemicals on-site	- Inadequate storage and handling of waste during site activities such as refuelling, placement of stockpiles, placing concrete, use of defective plant and equipment etc... can result in Contamination of: - Ground/soil - Surface water - Groundwater	4	4	16	- The Site Manager & QHSE Manager carries out regular inspections of fuel systems and their components & check for leakage, deterioration, or damage. Smoking is prohibited in the immediate area of the designated re-fuelling point. - Fire extinguishers will be available near the designated re-fuelling point in the event of a fire. - Combustible materials such as lubricants and greasy or oily rags will be kept separate from the designated re-fuelling point. - Establish (where practicable) designated refuelling and service areas on site. The use of remote fill points will be avoided. Where these are unavoidable, materials such as absorbent pads/ sand buckets will be kept readily available in case of spillage. - All refuelling will be supervised, and valves will not be left open unattended. - If mobile refuelling is carried out a check is done on completion to ensure of no spillages. - All containers that contain potential pollutants (e.g. fuels, oils and chemicals) will be securely stored. - All containers will be clearly labelled. Taps and hoses for leakage will be checked regularly for leakage. - Avoid storing drums tightly against each other - drums should be stored so that they can all be inspected for leaks. - The Site Foreman, will ensure that hazardous substances will be protected from damage and that all valves and trigger's are locked when not in use. - Tanks / drums will be stored in a secure bunded container / compound that can be locked. Bunded areas will not be allowed fill with rainwater. - Tanks will be sited away from vehicle movements and marked clearly so that they are visible. - Tanks will not be put where there is a direct link to surface watercourse or sewers. - Tanks are not placed on unmade ground to reduce the risk of soil contamination. - The Site Foreman will ensure that bunded tanks are protected from vandalism. - Bund will be impermeable to the substance that is being stored in the tank. - Induction and tool box talk training is provided for all contractors and employees on precautions and actions taken in the event of spillages - Substances shall not be placed where they can be damaged by plant & equipment. - We will ensure a zero-spill policy is developed for pouring concrete.	4	1	4	Y
Spill Response	- Hazardous substances such as fuels, lubricants and paints will be required on site. Presentation of spillages will be managed in the first instance, however spillages could occur. - Failure to adequately control a chemical or oil spill on site can lead to Contamination of: - Ground/soil - Surface water - Groundwater resulting in reduction in the amenity value of land / water - Prosecution - Reputation Damage for the Client and Cleantech	4	4	16	- A dedicated Spill Response Team is allocated to each location on the Project projects, the team is fully equipped with the appropriate spill kit material to mitigate the risk of a spill. - For the unlikely extreme event of a significant spillage we have in place arrangements for a dedicated and technically experienced specialist contractor (e.g. McBreen Environmental) who can mobilise quickly to make sure that appropriate measures are taken to mitigate the risk of any such spill. - Spill response training for designated personnel on site. - Suitable equipment, such as spill kits, oil booms and absorbent material, will be held at appropriate locations on site & within mobile plant. - Receptors/pathways (e.g. surface water drains/river) identified - Designated spill response team on site with roles and responsibilities defined - Emergency contact numbers and spill response team phone numbers communicated and posted in prominent locations at the site - Dry-running of incident scenarios – spill drills to take place at regular intervals on site - The Spill response team is based on the principles of STOP CONTAIN NOTIFY CLEAN UP INVESTIGATE CORRECTIVE & PREVENTATIVE ACTION PLAN - Inventory of SDS sheets maintained on site - Inspections of spill kits on site is regularly carried out by the QHSE Manager & Site Manager. - Spill response plan communicated to all on site at induction & by regular toolbox talks thereafter. - Toxic and contaminated waste must be disposed of to a suitable licensed tip and written evidence off receipt provided to the Employer's Representative	4	1	4	Y

Activity / Aspects	Impacts	Initial Assessment			Controls	Assessment			Okay to Proceed Y/N
		S	L	Score		S	L	Score	
Use following method for quantifying level of risk - S x L = Severity x Likelihood									
Excavations & Stripping	The project involves a number of excavations, excavations for the reservoir, ducting, pipe runs, for foundations for plinths etc...				- All excavation works shall be carried out, following the methodologies and controls identified in the Contaminated Land Method Statement RAMS. RAMS briefings shall take place for all involved. - Soils will be tested, including soil, soil leachate groundwater and surface water sampling, where contamination is suspected. - Excavations will only be carried out by suitable plant taking into account the constraints of the site. - It is thought that the majority of excavated material will be loaded directly onto lorries and brought to appropriate tip sites using fully licenced hauliers. - Excavated material will be stored locally at the site compound until it is ready to be brought offsite. - Only areas that require soil stripping on the project will be carried out. No unnecessary stripping of soil & vegetation. - Excavation works will not be carried out during or following heavy rainfall. Excavations will be covered during heavy rainfall to avoid the creation of surface water with high concentrations of suspended solids that would require dewatering. During lighter rain periods, the time period over which excavations are left open will be reduced insofar as is reasonably practicable. - Any pumped water will be effectively treated prior to disposal to the site. - Site has been reviewed for invasive species, none have been identified on site. - The site is unlikely to contain archaeological artefacts as it has been recently excavated for a carpark, however excavation shall be managed in accordance with the archaeological EA below. - Excavations are backfilled as soon as possible. - Any landscaping or planting takes place as soon as possible to prevent further leachate from soils.	4	1	4	Y
	Excavations involves stripping of soils and vegetation, excavation of ground and in some cases pumping out or managing water levels in excavations. Excavations can cause the following impacts: Pollution of water courses & ground water	4	4	16					
Other Material Management	Other materials requiring management is imported material and timber. Failure to manage materials brought onto site can lead to wastage of natural resources and contamination of the ground.	4	4	16	- Any imported material will be certified clean material, from a recognised source, suitable for construction of the proposed works. - Timber used for temporary and permanent works shall be from a temperate, sustainable source.	4	1	4	Y
	- Excessive noise levels represent a major hazard to site workers - Can cause offsite complaints & rapidly sour				- All planning restrictions, specification documents & QHSE prerequisites documents will be reviewed and appropriate controls implemented prior to work commencing - Method statement in place documenting controls for noise & vibrations when working at sensitive areas - Working hours adhered to - Noise emissions requirements of BS 5228 Part 1 & 2 (1997), shall be applied particularly to all hours outside normal working hours. - An estimate will be made of the highest noise level likely to be experienced at the façade of the nearest noise sensitive property & appropriate control measures implemented if necessary - Noise & vibration monitoring will take place where deemed necessary, results interpreted and additional controls implemented as deemed necessary - Consideration will be given to the use of alternative plant or construction techniques to reduce the noise levels. If alternatives are not viable, then consideration will be given to the use of barriers to reduce noise. - As much use as possible should be made of existing barriers e.g. site huts, material stockpiles, earthworks and site security hoarding. If this is not possible, then a warning that unavoidable noisy operations will occur on site will be included in any community liaison material issued to nearby residents and building occupiers. The reasons why alternatives are not viable, and the likely duration of noisy activities will be given. - Compressor covers will be closed when not in use. Compressors used on the Site shall be silenced either by using only fully silenced models fitted with effective exhaust silencers and properly lined and sealed acoustic covers all to the design of the manufacturers of the				

Activity / Aspects	Impacts	Initial Assessment			Controls	Assessment			Okay to Proceed Y/N
		S	L	Score		S	L	Score	
Use following method for quantifying level of risk - $S \times L = \text{Severity} \times \text{Likelihood}$									
Noise and Vibration Generation	- Disturbance of wildlife and natural heritage - High vibration levels over sustained periods can cause damage to buildings and sensitive equipment within buildings - High vibration levels can also cause disruption to wildlife, and damage geological, geomorphologic and archaeological sites	4	4	16	compressors or by the use of effective acoustic screens to enclose the noise source. Ancillary pneumatic percussive tools used on the Site shall be fitted with silencers of a type recommended by the manufacturers of the tools. - Noisy equipment shall be maintained in good and efficient working order and shall not have an altered in such a way that the noise caused in operation is made greater by the alterations. - Noise will be monitored by Cleantech Civils if deemed necessary. Results are shared with relevant regulators. - If noisy activities are envisaged they will be assessed and monitored to ensure compliance with legal requirements and noise suppression measures implemented if required. Noisy operations will only take place during daylight working hours therefore minimising any potential impacts on local residents. - Machinery will not be kept running unnecessarily. - The engine exhaust and silencing systems of the vehicles and machines are maintained. - Project personnel (including sub-contractors) are aware of the importance of minimising noise impacts on residential areas adjoining the site. - Complaints about vibration are responded to quickly and appropriate action such as modify the construction method to reduce vibration or ensure vibration levels to confirm compliance with standards will be taken. - It is not envisaged that vibration will be a significant issue during the construction phase. If 'vibration' activities are envisaged they will be assessed and monitored to ensure compliance with legal requirements and vibration suppression measures implemented if required. - Vibration Pollution can be harmful to animals. High Vibration will disturb the natural cycles of animals. Vibration can also be destructive to surrounding buildings and structures. - The use of piling equipment, rock breakers, tunnelling equipment, compressors or drills will not be used between the hours of 8pm and 8am on the following day. - Best available techniques for driving sheet piling will be used if piling is necessary.	4	1	4	Y
Resource Consumption	- Depletion of water resources - Depletion of land resources - Depletion of energy resources - Fumes produced during the combustion process of fossil fuels will contribute to the greenhouse effect, the generation of photochemical smog's and acid rain - Consumption of natural resources	4	3	12	- Personnel on site will be asked to minimise the amount of water used where possible on site - The policy of reduce, reuse, recycle is adopted on all sites where practicable thereby minimizing the amount of waste going to landfill - Avoid unnecessary idling of construction equipment. - On-site speed limits will be stipulated to prevent unnecessary use of fuels - Encourage subcontractor workers to carpool where possible. - Maintain equipment and machinery in good working condition. - Heaters and electricity in the canteens and offices are on timers to prevent unnecessary electrical usage	2	3	6	Y
Emission to Atmosphere through vehicles, possible fires or explosions and dust from site activities	- Fumes produced during the combustion process will contribute to the greenhouse effect, the generation of photochemical smog and acid rain - Dust can affect plant growth and damage crops - Damage to the ecology of watercourses - Dust can cause electrical and mechanical faults in equipment and plant - Health and safety implications for neighbouring community	4	3	12	- Unauthorised personnel are prohibited from entering sites. - All large sites are secured by means of hoarding or hares fencing. - Smoking is prohibited indoors. - All reasonable measures will be taken to minimise the creation of dust where appropriate. - All subcontractors will adhere to the dust minimisation measures. - Water bowsers will be used to suppress dust on haul roads and other areas on site where dust is generated. (A fine spray is preferable in suppressing dust in order to avoid excessive watering and the creation of mud or the creation of silty run off water). - If dust-generating activities cannot be avoided, the use of additional screening (e.g. transparent sheeting on bridges crossing sensitive watercourses) for dust will be considered. - Vehicles and plant used on site will be kept well maintained & regularly serviced. Engines will be turned off when the machine/vehicle is not in use. - Fuels, chemicals and other hazardous materials will be stored in an appropriate manner - Waste materials will not be burned on site. - Drivers are not encouraged to leave plant and equipment idling increasing fumes & wasting fuel - Control measures will be implemented to minimise dust generation and dispersion to ensure dust deposition does not occur beyond the site boundary or disrupting visibility for traffic. - Stockpiles will be managed as outlined above to prevent any dust generation. - Trucks transporting material from the site will be covered with a suitable tarpaulin if necessary which will minimise any dust dispersion during offsite transportation. - Wet suppression used for cutting roads and concrete - Plant & equipment will not be left idling or running unnecessarily - Burning of any material or waste is not permitted on site - Roads & public areas are maintained clean; free from obstructions & mud. - On-site speed limits will be stipulated to prevent unnecessary generation of fugitive dust emissions; - A complaints register will be maintained on-site and any complaints relating to dust emissions will be immediately dealt with; - In periods of dry weather when dust emissions would be greatest, a road sweeper, which would also dampen the road, will be employed in order to prevent the generation of dust	3	1	3	Y

Activity / Aspects	Impacts	Initial Assessment			Controls	Assessment			Okay to Proceed Y/N
		S	L	Score		S	L	Score	
Use following method for quantifying level of risk - S x L = Severity x Likelihood									
Transport of site machinery, employees, subcontractors and site deliveries	- The aspects contribute to all impact categories as follows: - the air emissions (e.g. carbon dioxide, hydrocarbons, particulates, nitrogen oxides, CFCs from a/c units) contribute to global warming, local air quality, acidification and ozone depletion; - the aqueous emissions contribute to water pollution; emissions to land (e.g. batteries, tyres, oils) generate a waste burden and contribute to ecotoxicity; - fuel consumption contributes to resource depletion; buses also generate noise and soot, contributing to dust and noise nuisance; - there is a risk of harm to human health associated with the maintenance of the vehicles and from road traffic accidents - Contribute to noise and vibration	3	2	6	- Unauthorised personnel are prohibited from entering sites. - All large sites are secured by means of hoarding or harness fencing. - Smoking is prohibited indoors. - All reasonable measures will be taken to minimise the creation of dust where appropriate. - All subcontractors will adhere to the dust minimisation measures. - Water bowsers will be used to suppress dust on haul roads and other areas on site where dust is generated. (A fine spray is preferable in suppressing dust in order to avoid excessive watering and the creation of mud or the creation of silt run off water). - If dust-generating activities cannot be avoided, the use of additional screening (e.g. transparent sheeting on bridges crossing sensitive watercourses) for dust will be considered. - Vehicles and plant used on site will be kept well maintained & regularly serviced. Engines will be turned off when the machine/vehicle is not in use. - Fuels, chemicals and other hazardous materials will be stored in an appropriate manner - Waste materials will not be burned on site. - Drivers are not encouraged to leave plant and equipment idling increasing fumes & wasting fuel - Control measures will be implemented to minimise dust generation and dispersion to ensure dust deposition does not occur beyond the site boundary or disrupting visibility for traffic. - Stockpiles will be managed as outlined above to prevent any dust generation. - Trucks transporting material from the site will be covered with a suitable tarpaulin if necessary which will minimise any dust dispersion during offsite transportation. - Wet suppression used for cutting roads and concrete - Plant & equipment will not be left idling or running unnecessarily - Burning of any material or waste is not permitted on site - Roads & public areas are maintained clean; free from obstructions & mud. - On-site speed limits will be stipulated to prevent unnecessary generation of fugitive dust emissions; - A complaints register will be maintained on-site and any complaints relating to dust emissions will be immediately dealt with; - In periods of dry weather when dust emissions would be greatest, a road sweeper, which would also dampen the road, will be employed in order to prevent the generation of dust	2	2	4	Y
	Water courses can be indirectly affected by inadequate silt management. There are no water course in close proximity to the site, however there is the site local site drainage system. Water course could be affected by hazardous substances, detailed controls are identified above, during placing of concrete, pumping out of excavations, stripping of soils etc... - Release of large quantities of untreated waste water, or pollutants such as wet concrete can cause serious pollution to watercourses and can for example lead to fish kills and can have severe negative impacts on aquatic ecology and flora. - High levels of silt can clog up fish gills and eventually kill it - Silt can also smother food sources such as invertebrates for fish - Silt preventing fish spawning and suffocating eggs - Pollutants change chemical balance or remove	4	4	16	- Works will be undertaken in accordance with CIRIA 650 'Environmental good practice on site'. - There will be no direct or indirect discharge of surface or ground water generated during construction activities to any surface water feature (drain, stream, river, lake, estuarine or coastal waterbody) - Stockpiles located at the designated areas for minimal amount of time. Topsoil will be stock piled but sub-soils will be removed off site as soon as possible to licenced facilities. - Silt fences will be constructed using a permeable filter fabric (Hy-Tex Terrastop Premium silt fence or similar) and not a mesh. Silt fencing will be installed as per the manufacturer's guidelines and shall be maintained until vegetation on the disturbed ground has been re-established. - Once Silt Fencing has been installed, the silt fence shall be inspected regularly by the Site Foreman during construction and more frequently during heavy rainfall - Excavation works will not be carried out during or following heavy rainfall. Excavations will be covered during heavy rainfall to avoid the creation of surface water with high concentrations of suspended solids that would require dewatering. During lighter rain periods, the time period over which excavations are left open will be reduced insofar as is reasonably practicable. - Fences will also be located in areas, close to the proposed development which are prone to wetting (e.g. ditches) as these areas may drain into the nearby rivers and streams. - Dewatering of excavations shall be avoided where possible. If required, this will be achieved by pumping excess water to settlement tanks or filtration systems located along the eastern boundary of the construction site, where the water will be retained for a sufficient length of time to allow particles to settle. Silt de-watering bags shall be used when water is being discharged. This discharged water will be within prescribed water quality limits (i.e. <25mg/L Total Suspended Solids [TSS] in accordance with the Freshwater Fish Directive [2006/44/EC] and Salmonid Waters Regulations [1988]). - Excavated material is backfilled as soon as possible where appropriate. - Water containing silt is never be pumped directly into a drainage system. Silt traps, mesh, silt socks, silt barriers installed - Suitable treatment will be applied e.g. use of a settlement lagoon, silt socks or tank for the treatment of silty water. - Only treated water compliant with the safe parameters will be discharged to watercourses. - If site water is contaminated with hazardous substances it must be collected by licenced company and disposed of appropriately by licenced facilities and records will be maintained. - Vehicles & equipment in maintained in good working free from leaks - Such washings will not be allowed to flow into any drain or watercourse	3	1	3	Y

Activity/ Aspects	Impacts	Initial Assessment			Controls	Assessment			Okay to Proceed Y/N
		S	L	Score		S	L	Score	
Use following method for quantifying level of risk - S x L = Severity x Likelihood									
	dissolved oxygen • Possibility of contamination as a result of accidental spillage or leakage of fuels/chemicals • Discharges to the aquatic environment can lead to reduction in WACs in the receiving waters and can impact the achievement or maintenance of Good status (S.I No. 272 of 2009).				• Permit to pump system will be utilised when using large water pumps – these pumps are only used as a last resort. • Monitoring & inspections of watercourses takes place on site by Site Management • Concrete washings must not be disposed of onsite to any surface or ground water feature. • All washings will be removed offsite and treated at a licensed facility. • No chemicals that are deleterious to aquatic organisms are to be used in cleaning works. • All raw, uncured waste concrete will be cured at a designated location, 50m of surface water conduit. • No concrete will be batched on site. All concrete will be transported within a concrete truck. • Any concrete pouring will be carried out by a suitably trained individual and will be supervised to ensure that there is no overspill. • No concrete pouring will take place during high rainfall or flood events. • It will be ensured that excavations are sufficiently dewatered prior to any pouring of concrete. • Concrete will be allowed to cure for 48 hours following pouring. • In the event of a concrete spill, the concrete will be allowed to cure prior to removal. • The contaminated substrate will then be removed entirely and disposed of in accordance with waste legislation. • Concrete mix trucks, pumps and equipment will only be washed down within the Contractor's compound.				
Flora, Fauna & Ecology Management	• Site establishment, fencing, clearing of vegetation leading to loss or reduction in and increased competition for habitats resulting in increased mortality and/or migration. • Loss of natural features • Damage to wildlife and habitats	2	2	4	• All hedgerows are protected by law. All nesting birds are also protected (Bird nesting is mainly April to July although some species may nest earlier or later). • Care should be taken to avoid disturbance to wildlife and their habitats. Many animals, plants and their habitats are protected by legislation e.g. bats, badgers and some birds. • Woody vegetation removal be undertaken outside of the main bird nesting period which begins on March 1st and continues until August 31st. • Workers must only remove hedgerows that they have been instructed to remove upon approval by the Site Management team • Workers must avoid compacting the soil around the base of trees. • Workers fence off areas to protect them from construction works and vehicle damage • Trees can be vulnerable or may be subject to a Tree Preservation Order; these should be identified during the planning stages of the works and made known to the PSCS/PC. None have been identified in this project. • Measures are implemented to ensure that harmful substances are not released into the environment, as wildlife may be affected. • Some substances are environmentally hazardous such as marine pollutants. • Litter can be hazardous to wildlife and is be disposed of correctly. • Ensure that any work in a Special Area of Conservation is only carried out with prior agreement with SEPA/EPA or department of environments. Working methods are agreed and work shall proceed only as agreed. Note this is not a known area of special conservation environments. • The above controls are communicated to all employees and sub-contractors via induction and environmental site rules. • The risk assessment method statement will include controls with regards to protected species & workers must work in accordance with the controls. Site Management will monitor compliance with these controls • Sensitive areas will be fenced off to prevent access • Employees & workers must look out for wildlife; no one must damage or disturb a habitat of a bird or mammal. • Employees & workers must report sightings or issues with protected wildlife	1	2	2	Y

Activity / Aspects	Impacts	Initial Assessment			Controls	Assessment			Okay to Proceed Y/N
		S	L	Score		S	L	Score	
Use following method for quantifying level of risk - S x L = Severity x Likelihood									
Litter; nuisance, odour and visual impacts	Visual impact on the local environment & risk of skidding of cars Food waste will encourage vermin such as rats onto site Site skips being used by unauthorized persons Complaints from the public	3	3	9	- It is not expected that significant quantities of material with the potential to generate odours will be encountered during the construction works - Skips available on site for all types of waste. - Canteen/food areas kept tidy by cleaning contractors therefore reducing vermin attraction - Sites have security personnel to monitor unauthorized personnel. - Sites are fully enclosed with signage warning of unauthorized access - Newsletters, communications with the neighbours and local businesses, abatement measures etc. These measures are all classified as environmental good practices and have all been effective in their own right. - Complaints are dealt with within our NCR reporting procedure. - Exposure of waste material to the atmosphere for minimal time. - The expected nature and volumes of odour generating material does not warrant an odour suppression unit on-site. - There are no localised odour emissions generated from our sites. - A good housekeeping policy will be implemented on site. Materials are stored in an organized manner throughout the sites. - Employees and workers on site are not permitted to litter; bins & waste receptacles are provided. - Eating on site is not permitted - Roads and public thoroughfares are maintained free from debris; muds and obstructions - Regular EHS walkthroughs of the site will be completed and any litter found will be immediately collected and placed in the appropriate skip/containers. - Cleantech civils is a considerate contractor; establishing and maintaining good relations with local residents and committees while carrying out construction work in an area is very important to the company. Where possible; Cleantech aim to hire people from the local area wherever possible. Employees & workers on site must behave in a considerate and appropriate manner to all people they encounter at the site. - Employees & workers are reminded of the following: - o Always be polite & mannerly when dealing with locals & members of the public - o Explain what you are doing & why - o Ask them to report to the site supervisor if they have any concerns - o Never use foul or abusive language - o Do not make inappropriate or demeaning comments to the members of the public for example wolf whistling - o Inform your supervisor if a member of the public had concerns - Lighting can cause nuisance; employees must adhere to the following control measures - o Position lights to avoid lighting areas outside the work area. - o Switch off lights when not required for safety or security. - o Direct lights downward to the work area. - o Erecting screens or baffles to reduce light spilling outside of the work area.	2	2	4	Y
Fire water; Fire and Explosion	Risk of fire and explosion causing damage to the local environment & risk of fire water run-off	4	3	12	*Actions and necessary precautions to prevent fires shall be implemented, such as clear signs in local language prohibiting smoking or other activities, in those areas (fuel storage...) where there is a fire hazard; *On site burning of waste materials, vegetation, litter or refuse shall not be permitted. *Use of open fires for heating or cooking purposes shall be strictly prohibited; *Fire-fighting equipment shall be available on site at all times; *Emergency procedures, including the names of responsible staff, contact details of emergency services and reporting procedures shall be made available at relevant locations around the site.	2	2	4	Y
Contractor Activity	Contractor activity can lead to a host of environmental aspects and impacts as detailed previous within this register. Examples include - Leaking equipment - Failure to fuel correctly - Removal of silt fencing - Failure to manage waste correctly - Damage to archaeology or natural habitats	4	3	12	- Sub-contractor selection & appointment procedure in place & adhered to - Use of sub-contractors from the approved sub-contractor list - Pre-start meetings & weekly meetings thereafter communication performance and planning requirements for upcoming activities - Sub-contractor activity is audited on site - Sub-contractors must appoint a site supervisor whom must monitor and ensure their activities are in compliance with the EMP - Appropriate induction and toolbox talks of environmental site rules are given to all contractors on site. - Spill kits and absorbent materials are readily available on site. - All small containers are stored securely when not in use on an impermeable base. - All spillages are reported to the Site Manager who is responsible for investigating and taking remedial action to control the spillage and arrange clean-up operations. - Contractors must adhere to all Site Rules at all times.	2	2	4	Y

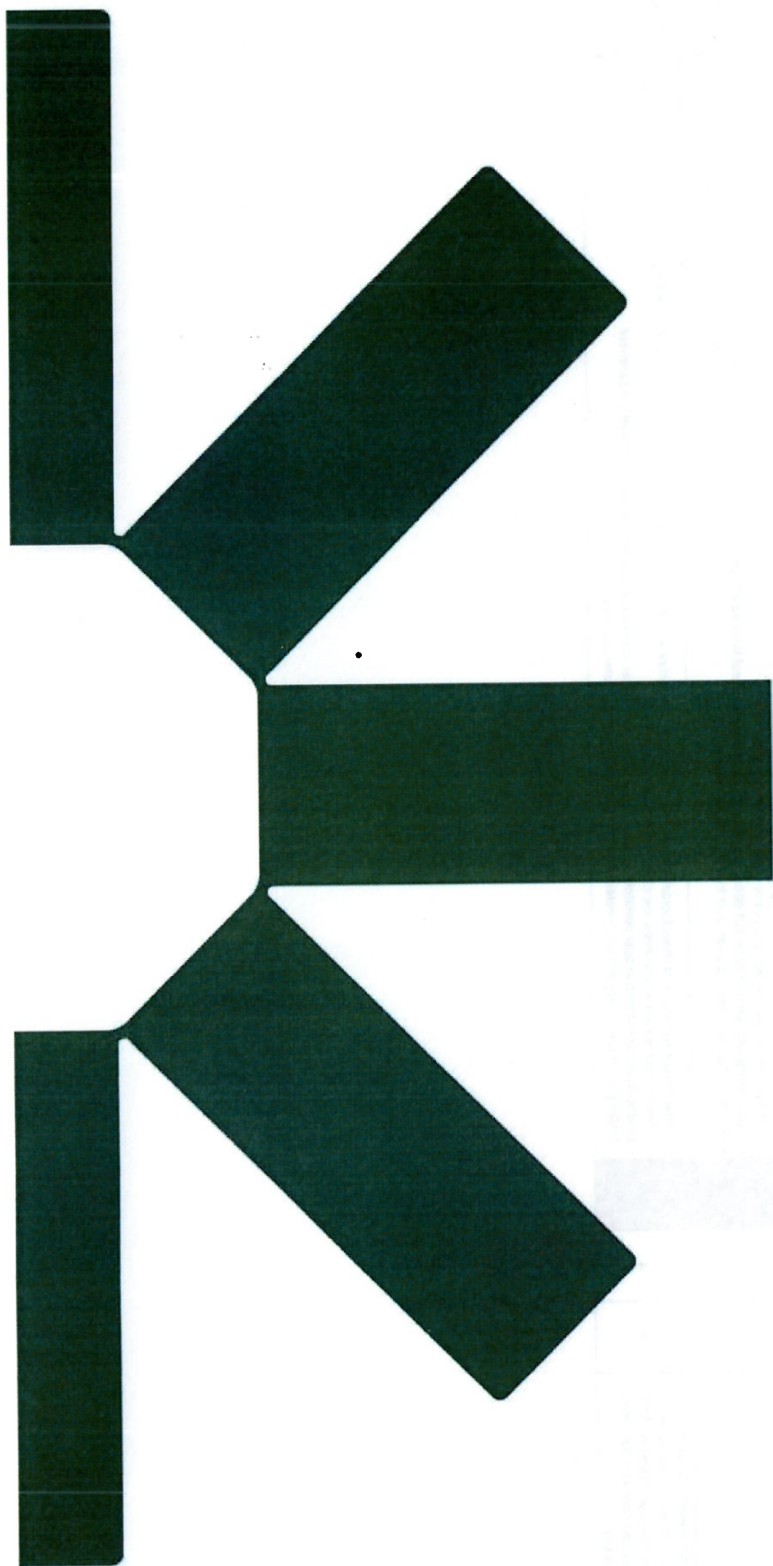
Activity / Aspects	Impacts	Initial Assessment			Controls	Assessment			Okay to Proceed Y/N
		S	L	Score		S	L	Score	
Use following method for quantifying level of risk - $S \times L = \text{Severity} \times \text{Likelihood}$									
Invasive Species –such as Japanese Knotweed; Himalayan Balsam & Giant Hogweed	• Spreading of invasive species through construction methods by people or plant • Littering can increase risk of knotweed spreading & invasive species • Topsoil's brought in can spread knotweed or invasive species if its present in the soil • Damage to wildlife and habitats due to invasive species • Reduction in the amenity value of the site • Risk of stability of structures due to presence of knotweed	3	3	9	• Invasive species reports assessed, evaluated & appropriate controls implemented. • Design out the need to work within the zone of invasive species wherever possible. • When digging close to invasive species rooting systems, a invasive species expert will supervise the works • Careful preparation of the site and planning of the works is crucial to successful treatment of invasive species prevent further infestation on site. • Only those who have been inducted into biosecurity measures on-site may enter the contaminated areas within the works area. Should any risk of contaminated material escaping be observed by the site supervisor, the management plan for the site must be amended by an appropriately to mitigate against the risk. • Good Hygiene Practices - o It is a criminal offence to plant or cause the spread of these plants. - o Where injurious and invasive plants become suspected during works, cease work and contact the Site Management immediately. - o The significance of these invasive species will be highlighted in the induction and tool box talks. - o Risk Assessments and Method Statements (RAMS) from contractors will be reviewed and approved before work commences to ensure the requirements above are understood, factored into working methods and adhered to. - o In the case of Knotweed, a series of test pits 7 – 10 metres from the parent plant will be dug, to confirm that no rhizomes are present at this distance. This work will be supervised by an invasive species expert - o Fences will be erected around areas of infestation, as confirmed by test pits, and warning signs will be erected. - o A designated wash-down area will be created, where power-washed material from machinery can be contained, collected and disposed of with other contaminated material. This area will contain a washable membrane or hard surface. - o Stockpile areas will be chosen to minimise movement of contaminated soil. - o Stockpiles will be marked and isolated. - o Stockpile areas will be clearly identified and marked out and will not be within 50m of any watercourse or within a flood zone. - o Creation of entry and exit points for operators on foot and for small mobile equipment will be in place.	1	3	3	Y
Handling & storage of hazardous substances on-site	• Wasting excess quantities of raw materials • Storing and handling of waste badly leading to environmental impairment (odours etc) • Disposing of too much waste to landfill • Attraction of pests • Groundwater/ Surface water contamination • Ground contamination • Incorrect waste segregation • In correct un approved disposal • Noise and Vibration associated demolition • Emissions of vehicle fumes & dust. • Risk of contamination of work & public areas of asbestos containing materials	4	4	16	• Completion of a demolition survey which includes identification of waste streams & potential existing contaminants • Completion of a risk assessment method statement (RAMS) for demolition activities & adherence to the approved RAMS • Good relations with people living and working in the vicinity of the demolition works are important. People who are likely to be affected by the noise shall be informed, by letter drop or other appropriate means. • Where possible upon completion of the demolition survey, waste material crushed and reused for filling, this will be dependent on whether any decontaminates are identified. • Waste from demolition will be segregated & appropriately disposed of by licenced facilities	2	2	4	Y
Contamination of water supplies	• Contamination of water supplies endangering the health of persons using it leading to bad publicity and problems for the Client & Cleantech Civils	3	4	12	• Contamination of the water supplies could create dangers to public health and in this respect every precaution is taken to prevent contamination. • Before any person engaged on the site, the shall be notified of the need for personal hygiene and the dangers of contamination. • All personnel operating in and around the Contract is to be screened by an approved medical facility for all water transmittable diseases and all records of screening shall be maintained. • If any staff employed on site contract illnesses, such as infective jaundice, gastro-enteritis, persistent diarrhoea or prolonged unexplained fevers, it must be reported to Site Management • Infected people will not be permitted to work on the activities included in the Contract or to enter the Client Sites without first obtaining authorisation from an appropriate medical authority. • All personnel operating in and around the contract will have received appropriate training in hygiene requirements prior to commencing work in or around the project. Evidence of such training will be provided to the Clients Representative. • Sufficient chlorines wipes will be made available at all times to maintain an appropriate level of cleanliness of tools, equipment, pipe, fittings and employees. All fittings must be kept within sealed wrappings and must not be stored on the floor of vans or warehouses. • Where a contamination incident is suspected to have occurred, the Site Manager shall notify the Client Representative immediately and the necessary action will be determined. • Cleantech Civils shall submit a completed Health Questionnaire for every person employed on Public Water Supply Sites.	2	2	4	Y

Activity / Aspects	Impacts	Initial Assessment			Controls	Assessment			
		S	L	Score		S	L	Score	
Use following method for quantifying level of risk - S x L = Severity x Likelihood									
Working close to & removing trees	Trees and hedgerows are an important part of the environment and the countryside. They provide a vitally important habitat for wildlife and many trees and hedgerows are protected by law. Work involving tree removal and work close to trees can present a risk of tree damage & prosecutions	4	4	16	• A competent Arborist is available & will assess works prior to removal or working close to trees • The Arborist will supervise the works close to trees or where trees are required to be removed • Where possible works will be designed to avoid the need to avoid trees • Competent tree surgeons will trim back to remove trees • Tree removal or trimming will be carried out, outside nesting season • A method statement will be drawn up for any trimming or removal of trees • Protected trees will be appropriately protected by barriers; the exclusion zones will incorporate • Workers must not damage trees, • Material, fuels and oils must not be stored under or beside trees	5	1	5	Y
Avoiding nuisance and being a good neighbour	Many in the local community will regard the start of construction work in their neighbourhood with great concern. The public are often afraid that construction work will bring noise, dust, road closures, increased heavy road traffic and disruption to normal life.				• Being a good neighbour means all those involved in a construction project acting with consideration for all those who live and work in the area surrounding the construction site to minimise their inconvenience. • Being a good neighbour creates a positive image of the industry • Liaise with an communicate with residents and local business prior to starting work - a letter drop policy is in place • Workers must be polite and considerate to members of the public at all times • Any workers who experience a complaint being brought to their attention must report it to the site management team • The site management team must take notice of the complaints and try to resolve the issues wherever possible • Only approved routes may be used on site • Only designated parking areas and work zones utilised • Workers must not obstruct footpaths or drive ways • Dust, vibrations and noise must be kept to a minimum • Engine covers in place to reduce noise • Site lighting directed away from neighbouring properties and so as to avoid glare to traffic • No littering is permitted • Skips are not over filled • No trespassing permitted on land unless permission is granted • Mobile plant is not left unnecessarily left running • Workers are not permitted to shout or whistle at passer-by's • Gates to the site are not to be left open; neither will gates of agricultural land be left open • Roads will be maintained clean and free from obstructions	5	1	5	Y
Drilling and tunnelling	Drilling and tunnelling can present hazards to the environment such as damage to structures, archaeological features, damage to tree rooting structures and the fluids can contaminate water courses	4	4	16	• Geotechnical surveys & archaeological are reviewed and ground surveys are conducted to ensure suitability for drilling or tunnelling • Arborist is consulted where trees are close to the potential drill site • Drilling fluids are stored in appropriately so as not to contaminate water courses, in dry storage areas on spill containment • Drilling fluids are contained and treated so as to prevent ingress to water courses	5	1	5	Y

Y

Y

Y



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