Murray Brothers Tarmacadam Ltd

ARDCAHAN QUARRY SUBSTITUTE CONSENT REMEDIAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT (rEIAR)

VOLUME III

APPENDICES

February 2026

Murray Brothers Tarmacadam Ltd

VOLUME III – APPENDICES

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Murray Brothers Tarmacadam Ltd

ARDCAHAN QUARRY SUBSTITUTE CONSENT

VOLUME III

APPENDICES

January 2026

Murray Brothers Tarmacadam Ltd

APPENDIX 1.1
CONSULTATION RESPONSES

VOLUME III
APPENDICES

FEBRUARY 2026

Martina Keenan Rivero

From: Geraldine O'Mahony <Geraldine.OMahony@CorkCoCo.ie>
Sent: Friday 29 November 2024 16:31
To: Martina Keenan Rivero; Cora Savage
Subject: EIAR Consultation - Ardcahan Quarry, Dunmanway, Co. Cork

NOTE: *This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.*

Dear Ms. Keenan Rivero,

I refer to your email received on 29/11/24 and your request for pre-application consultations and scoping opinion regarding Ardcahan Quarry, Dunmanway.

I note from your email that it is intended to apply to An Bord Pleanála for Substitute Consent for historical quarrying and future expansion of the existing quarry. This will include the submission of a remedial EIAR and remedial NIS, in addition to an EIAR and an NIS, to the Board.

As such, the Board is the consenting authority in this case and not the Planning Authority. Requests for pre-application consultations and scoping proposals should, therefore, be made to the Board under s. 177E & s.177F of the Planning and Development Act, 2000 (as amended).

Yours sincerely,

Geraldine O'Mahony
Senior Planner

Gearóidín Ní Mhathúna I Pleanálaí Sinsearach I **Pleanáil agus Forbairt**
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From: INFO <Information@tii.ie>
Sent: Monday 2 December 2024 09:19
To: Martina Keenan Rivero
Subject: TII Ref: TII24-129669 - EIAR for continued quarrying operations, Ardcahan Quarry, Dunmanway, Co. Cork

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Dear Ms. Keenan Rivero,

Thank you for your correspondence of 29 November 2024 regarding the above. Transport Infrastructure Ireland's (TII's) position in relation to your enquiry is as follows.

TII wishes to advise that it is not in a position to engage directly with planning applicants with respect to proposed developments. TII will endeavour to consider and respond to planning applications referred to it, given its status and duties as a statutory consultee under the Planning Acts. The approach to be adopted by TII in making such submissions or comments will seek to uphold official policy and guidelines, as outlined in the Section 28 Ministerial Guidelines 'Spatial Planning and National Roads Guidelines for Planning Authorities' (DoECLG, 2012) and TII publications. Regard should also be had to other relevant guidance available at www.TII.ie.

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

TII notes the stated intention that the remedial EIAR (rEIAR) to be prepared is for substitute consent application.

With respect to rEIAR Scoping issues, the recommendations indicated below provide only general guidance for the preparation of an EIAR, which may affect national roads network.

The project promoter should have regard, inter alia, to the following:

Having regard to the EPA's 'Guidelines on the information to be contained in Environmental Impact Assessment Reports' (2022), it is recommended as appropriate that the national road and light rail networks are recognised as strategic transport assets under "material assets". EIAR assessment and mitigation should have regard to the following:

- **National Roads**: Official policy for development at or near national roads is set out in in the DoECLG's 'Spatial Planning and National Roads Guidelines for Planning Authorities' (2012), available at https://www.gov.ie/en/collection/85b83-planning-guidelines-standards/
- **TII Publications**: In addition, as part of TII's responsibilities for managing and improving the Country's national road and light rail networks, the Authority sets development guidance and standards for traffic and road assessments and construction, which may be necessary by reason of proposed development location, scale or typology, to be prepared to accompany applications for developments or works. Technical guidance and standards are contained in TII Publications, available at https://www.tiipublications.ie/.

In addition, the EIAR should have regard to, *inter alia*, to the following:

National Road Network:

- TII would be specifically concerned as to potential significant impacts the development would have on the national road network (and junctions with national roads), in the proximity of the proposed development.
- TII notes that the subject site adjoins the N63, national secondary road. Therefore, there are official policy and road safety considerations that would need to be resolved in relation to access to national roads as outlined above.
- Consultations should be had with the relevant Local Authority/National Roads Design Office, with regard to the locations of existing and future national road schemes.
- The EIAR should have regard to any prior Environmental Impact Statement or Assessment Report and all conditions and/or modifications imposed by An Bord Pleanála regarding road schemes in the area. The developer should, in particular, have regard to any potential cumulative impacts.
- The EIAR should have regard to the provisions of Chapter 3 of the DoECLG 's 'Spatial Planning and National Roads Guidelines for Planning Authorities', in the assessment.

TII Publications:

- It would be important that, where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment (TTA) be carried out in accordance with relevant guidelines, noting traffic volumes attending

the site and traffic routes to/from the site, with reference to impacts on the national road network and junctions of lower category roads with national roads. In relation to national roads, TII's 'Traffic and Transport Assessment Guidelines' (2014) should be referred to in relation to proposed development, with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of TII's TTA Guidelines, which addresses requirements for sub-threshold TTA.

- The designers are asked to consult TII Publications to determine whether a Road Safety Audit is required.

TII environmental assessment guidance:

- The EIAR should have regard to TII's Environmental Assessment and Construction Guidelines, including the 'Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes' (National Road Authority (NRA), 2014).
- The EIAR should consider the European Communities '(Environmental Noise) Regulations 2018' (S.I. No. 549 of 2018)) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see 'Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes' (NRA, 2014)).

Haul routes utilising the national road network:

- Elements of the national road network are operated and managed by a combination of (Public Private Partnerships) PPP Concessions, Motorway Maintenance and Renewal Contracts (MMaRC) and local road authorities, in association with TII. In relation to haul route identification, the applicant/developer should clearly identify haul routes proposed and fully assess the network to be traversed to ascertain any operational requirements, including delivery timetabling, etc., to ensure that the strategic function of the national road network is safeguarded.

- Separate structure approvals/permits and other licences and works specific deeds of indemnity may be required in connection with the proposed haul route, including where temporary modification to the road network may be required. Consultation with all relevant local authorities, PPP Companies and MMaRC Contractors, may also be required.

- All structures on the haul route should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal load proposed, including abnormal weight load. Additionally, any damage caused to the pavement on the existing national road arising from any temporary works due to the turning movement of abnormal loads (e.g. tearing of the surface course, etc.) shall be rectified in accordance with TII Pavement Standards and details in this regard shall be agreed with the Road Authority prior to the commencement of any development on site.

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

I hope that this information is of assistance to you.

Yours sincerely,

_____
Suzanne Cahill
Regulatory & Administration Executive

From: Martina Keenan Rivero <mrivero@mhplanning.ie>
Sent: Friday 29 November 2024 11:26
To: Landuse Planning <LandUsePlanning@tii.ie>
Subject: EIAR Consultation

You don't often get email from mrivero@mhplanning.ie. Learn why this is important

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Dear Sir/Madam,

Please find attached correspondence in connection with:

Pre-application consultation on the preparation of: (1) a Remedial Environmental Impact Assessment Report (rEIAR) for quarrying development that took place between 1990 and 2014, and (2) an Environmental Impact Assessment Report (EIAR) for continued quarrying operations.
Location: Ardcahan Quarry, Dunmanway, Co. Cork

To assist the EIAR Team in scoping the extent of information required about the Project and its likely environmental effects, we are seeking comments from statutory authorities and other stakeholders. Your early input will greatly assist in preparing the EIAR. All

comments should be sent to McCutcheon Halley Planning by COB Friday, 17th January 2025.

Comments or queries can be directed to Martina Keenan Rivero at mrivero@mhplanning.ie or Cora Savage at csavage@mhplanning.ie

Kind regards,
Martina

Martina Keenan Rivero
Associate Director
McCutcheon Halley
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An Roinn Comhshaoil, Aeráide agus Cumarsáide
Department of the Environment, Climate and Communications

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Martina Keenan Rivero / Cora Savage
McCutcheon Halley Planning
4th Floor, Kreston House
Arran Court, Arran Quay
Dublin 7, D07 K271

16 December 2024

Re: rEIAR for quarrying development and EIAR for continued quarrying operations at Ardcahan Quarry, Dunmanway, Co. Cork

Your Ref: n/a
Our Ref: 24/414

Dear Martina, Cora,

Geological Survey Ireland is the national earth science agency and is a division of the Department of the Environment, Climate and Communications. We provide independent geological information and interpretation and gather various data for that purpose. Please see our website for data availability.

With reference to your email received on the 02 December 2024, concerning the consultation for the rEIAR for quarrying development and EIAR for continued quarrying operations at Ardcahan Quarry, Dunmanway, Co. Cork, we recommend using our various data sets when conducting the EIAR, SEA, planning and scoping processes for developments, plans and policies. For more detailed information on how to access this data please access 'Data and Maps' Data & Maps (gsi.ie) on our 'Geoscience for planning' webpage. Use of our data or maps should be attributed correctly (please refer to each individual dataset's metadata for correct attribution).

For specific data available for Environmental Assessment and Planning topics please follow this link [Data by Environmental Assessment and Planning Topic (gsi.ie)], where you will find our data arranged by environmental assessment topic as illustrated below:

Land and soils

Soil
- Subsoils (Quaternary Geology)
- Tellus Geochemistry
- Geotechnical

Geology
- Bedrock
- Geophysics
- Bedrock & Quaternary 3D

Water

Groundwater
- Aquifers GW vulnerability, GWPSs (GWPPs)

Surface water
- Tellus Geochemistry

Estuarine & marine waters
- Marine and coastal

Flooding
- GWClimate
- Karst

Climate Change

Carbon accounting / Carbon balance
- Geothermal
- Carbon capture and storage

Climate change trends
- National coastal change assessment

Cultural Heritage

Archaeology
- Cherish

Underwater Archaeology
- Shipwrecks

Material Assets

Built Services
- Natural resources (Minerals & Aggregates)
- Active quarries

The Landscape

Landscape Appearance & Character
- Physiographic units

Historical landscapes
- Historic mines

Other Relevant Data

Natural (Geo) hazards • Landslide Susceptibility Mapping • Groundwater flooding • Coastal vulnerability • Subsidence • Radon	*Natural heritage* • Geoheritage (County Geological Sites) • Dimension Stone/Stone Built Ireland	

Other Comments

Should development go ahead, all other factors considered, Geological Survey Ireland would much appreciate a copy of reports detailing any site investigations carried out. The data would be redacted for confidentiality and added to Geological Survey Ireland's national database of site investigation boreholes, implemented to provide a better service to the civil engineering sector. Data can be sent to the Geological Mapping Unit, at mailto:GeologicalMappingInfo@gsi.ie.

If we can be of any further help, please do not hesitate to contact me Clare Glanville, or my colleague Trish Smullen at GSIPlanning@gsi.ie.

Yours sincerely,

Dr. Clare Glanville
Senior Geologist
Geoheritage and Planning Programme
Geological Survey Ireland

Trish Smullen
Geologist
Geoheritage and Planning Programme
Geological Survey Ireland

The publicly available data referenced/presented here, should in no way be construed as Geological Survey Ireland support for or objection to the proposed development or plan. The data are made freely available to all and can be used as independent scientific data in assessments, plans or policies. It should be noted that in many cases these data are a baseline or starting point for further site specific assessments.

From: planning applications <planning.applications@failteireland.ie>
Sent: Tuesday 14 January 2025 16:43
To: Martina Keenan Rivero
Cc: Cora Savage
Subject: rEIAR Ardcahan Quarry, Dunmanway, Co. Cork
Attachments: Fáilte Ireland EIAR Guidelines 2023.pdf

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Hello Martina,

Thank you for letter regarding the rEIAR and the EIAR regarding Ardcahan Quarry, Dunmanway, Co. Cork.

Please see attached a copy of the updated Fáilte Ireland's Guidelines (2023) for the Treatment of Tourism in an EIA, which you may find informative for the preparation of the Environmental Impact Assessment for the proposed project. The purpose of this report is to provide guidance for those conducting Environmental Impact Assessment and compiling an Environmental Impact Assessment Reports (EIAR), or those assessing EIARs, where the project involves tourism or may have an impact upon tourism. These guidelines are non-statutory and act as supplementary advice to the EPA EIAR Guidelines outlined in section 2.

Also for your information Fáilte Ireland has a dedicated mailbox for all planning notifications/applications and consultations planning.applications@failteireland.ie
By using this email address, it will ensure the information/notifications will go direct to the Manager of Environment & Planning (Shane Dineen) and the Planning Team and will be reviewed and responded to in a timely manner by the Manager and the Environment & Planning Team. Please use this email address for all future planning notifications/applications and consultations.

Regards,

Yvonne

Yvonne Jackson
Product Development-Environment & Planning Support | Fáilte Ireland

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Fáilte Ireland
Turasóireacht Náisúnta An tÚdara Eorbartha
National Tourism Development Authority

EIAR Guidelines for the Consideration of Tourism and Tourism Related Projects



July 2023

An tÚdarás Náisiúnta Forbartha Turasóireachta
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1. Introduction

Tourism is a growing sector and substantial part of the Irish Economy. It contributes to both urban and rural economies in every part of the country. The impact and interaction of tourism with the environment is complex and the assessment of environmental impacts is of utmost importance to creating a sustainable tourism economy and protecting the natural resources that are so often a tourism attraction.

The purpose of this report is to provide guidance for those conducting Environmental Impact Assessment and compiling an Environmental Impact Assessment Reports (EIAR), or those assessing EIARs, where the project involves tourism or may have an impact upon tourism. These guidelines are non-statutory and act as supplementary advice to the EPA EIAR Guidelines outlined in section 2.

This guidance document has been prepared by Fáilte Ireland to update their EIA guidelines in line with changes in legislative and guidance requirements.

2. Background to this Document

Tourism is one of the largest and most important sectors of the economy, providing employment for approximately **260,000 people**, an economic contribution of **€9.5 billion**, and exchequer revenue of **€1.8 billion** in 2019, which helps fund other key public services.

In 2019 Ireland welcomed **9.7 million overseas visitors.**

Fáilte Ireland is the National Tourism Development Authority established by the Irish Government in May 2003. Fáilte Irelands role is to support the tourism industry and work to sustain Ireland as a high-quality and competitive tourism destination. They provide a range of practical business supports to help tourism businesses better manage and market their products and services.

Fáilte Ireland also work with other state agencies and representative bodies, at local and national levels, to implement and champion positive and practical strategies that will benefit Irish tourism and the Irish economy.

Fáilte Ireland promotes Ireland as a holiday destination through a domestic marketing campaign (DiscoverIreland.ie) and manage a network of nationwide tourist information centres that provide help and advice for visitors to Ireland.

Tourism related projects cover a broad range of plans, programmes and developments, from the Wild Atlantic Way to a single hotel conversion. These guidelines apply to projects involving or impacting upon tourism. A tourism plan, strategy or programme where it is part of the statutory plan making process under the Planning and Development Acts (as amended), may be more appropriately assessed by a Strategic Environmental Assessment (SEA) as discussed in the next section.

It should be borne in mind that EIA is required where there is anticipated to be a significant impact on the environment, where tourism projects are of a prescribed type or meet thresholds identified below.

Where Natura 2000 Designated Sites are potentially affected by tourism development Appropriate Assessment must be carried out by the appropriate authority in accordance with Article 6(3) of the EU Habitats Directive.

3. Legislation and Statutory Guidance

Environmental Impact Assessment is a procedure that ensures that the environmental implications of decisions are taken into account before planning based decisions are made. The assessment results in a report, called an Environmental Impact Assessment Report (EIAR).

Legislation

These guidelines are produced under current EIAR legislative requirements, having regard to Directive 2011/92/EU (known as 'Environmental Impact Assessment' – EIA Directive), as amended by Directive EU 2014/52 which came into effect in May of 2017. These requirements were transposed into Irish Law on 1 September 2018 as most of the provisions of the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) came into effect. The principle of both Directives is to ensure that plans, programmes and projects likely to have significant effects on the environment are made subject to an environmental assessment, prior to their approval or authorisation.

Statutory Guidance

In response to the changes to the EIAR requirements under Directive EU 2014/52, the Environmental Protection Agency (EPA) developed Guidelines on the information to be contained in Environmental Impact Assessment Reports in May 2022. The Guidelines are a statutory document to be regarded by those preparing EIARs and the decision makers considering the EIARs.

Some of the key changes to the EIA Directive introduced by Directive 2014/52/EU are as follows:

- Additional information to be provided in the project description to describe the location of the project, the technologies and substances used, the construction of the project and required demolition;
- The requirement for consideration of alternatives has changed from a requirement to provide ‘An outline of the main alternatives studied by the developer and an indication of the main reasons for this choice, taking into account the environmental effects’ to ‘a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment’;
- A refinement of the environmental factors to be considered in the assessment with an increased focus on resource efficiency, climate change, biodiversity and disaster prevention;
- Changes to Prescribed Environmental Factors with ‘Land’ being added, ‘Human Beings’ replaced by ‘Population & Human Health’ and ‘Flora & Fauna’ replaced by ‘Biodiversity’;

- The developer is required to have competent experts to prepare the EIAR and the Board is required to have access to sufficient expertise to assess the EIAR;
- Requirement for the incorporation of mitigation and monitoring measures in consents and ensuring that developers deliver these measures;
- The requirements for the assessment of cumulative effects with existing and/or approved projects, taking into account existing environmental issues to be considered; and
- Reasoned decisions made with regard to the EIA outcomes must be provided.

In addition to the EPA statutory guidance, the Department of Housing has produced Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment in August 2018.

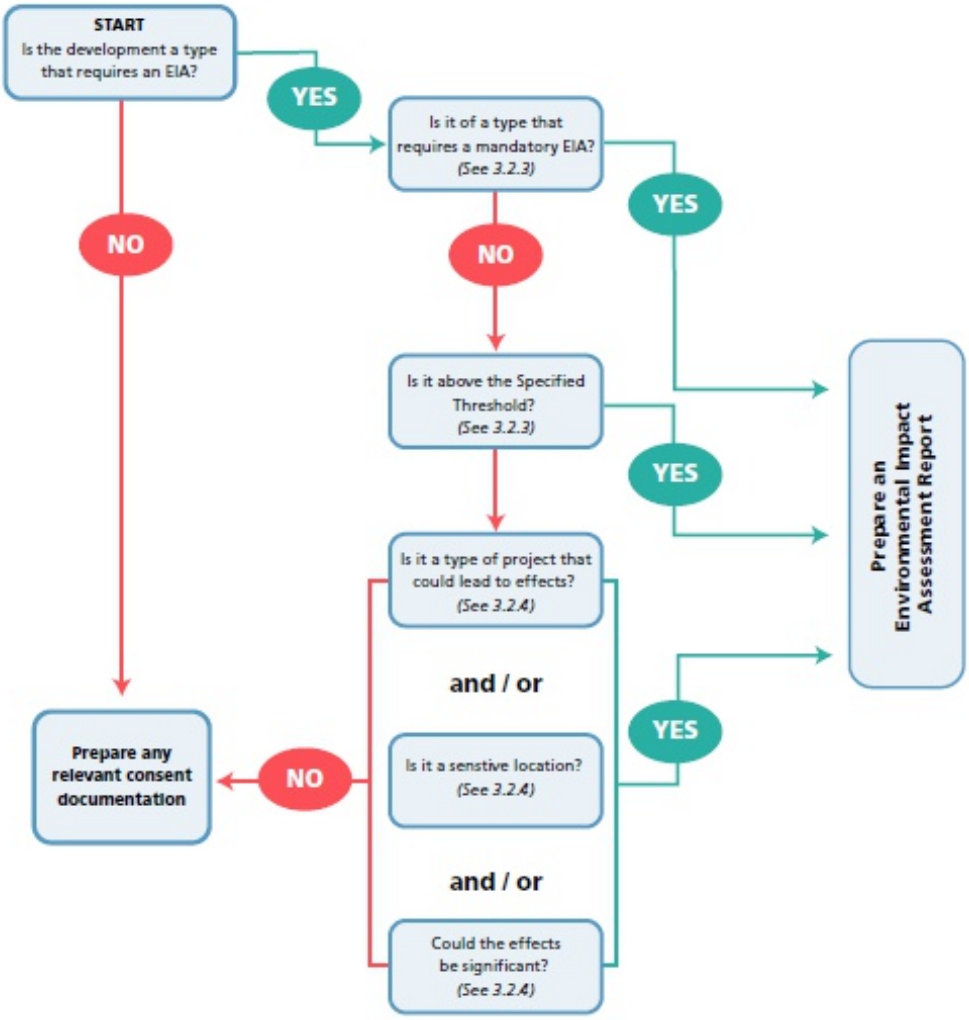
The process of EIA is set out in the EPA EIAR Guidelines, this document should be read in conjunction with and used as supplementary guidance to the EPA EIAR Guidelines. The process for ascertaining whether an EIAR is required is known as 'screening' and the process to determine the breath and scope of an EIAR is known as 'scoping'. Guidance on this can be found in Section 3.2 of the EPA Guidelines.

Screening

Through EIA Screening, developments are either considered as requiring an EIAR due to the project type or because they exceed a threshold level. The screening process begins by establishing whether the proposal is a 'project' as understood by the Directive (as amended).

The prescribed development types and thresholds are set out in Annex I and II of the EIA Directive as transposed into Schedule 5 of the Planning and Development Regulations 2010-2018 (as amended). Development which does not exceed these thresholds but may require an EIAR are called sub threshold. Sub-Threshold considerations are outlined in Schedule 7 of European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) as transposed from Annex III of the Directive. The Guidelines on Environmental Impact Assessment Reports note that projects at first glance may not appear to come under the Schedule but on closer examination when the process is further examined, they may do so because of the sensitivity or significance of the receiving environment etc. Sub threshold developments require an EIAR if they are likely to have significant environmental impacts and must undergo assessment for likely significant impacts through an EIAR screening report. The contents of a screening report for subthreshold development are contained in Annex III of the EIA Directive.

Figure 1: EIAR Screening Process



(Taken from Fig 3.2 of the EPA Guidelines)

Tourism locations should be identified as sensitive receptors in screening assessments for particular impacts, depending on scale and sensitivity, as they would in a full EIAR. Section 6 below can act as guidance for Screening Reports as well as for full EIAR.

The screening process for considering where an EIAR is necessary, is summarised above in Figure 1 (excerpted from Figure 3.2 of the EPA Guidelines).

Strategic Environmental Assessment (SEA) is a more strategic level of environmental assessment that examines plans, policies, objectives and programmes specifically rather than projects. For some tourism developments it may be more appropriate that they be examined through SEA, while individual projects or specific proposals are likely to be more assessed through EIAR. If a project is part of a plan, programme or policy/objective assessed by SEA there may still be a requirement for an EIAR for that development (subject to EIA Screening assessment).

EIAR Scoping

Scoping an EIAR is an opportunity to look at the breadth of issues and ensure that any areas of possible significant impact are assessed. Identifying sensitivities and stakeholders should take account of tourism facilities and consider Fáilte Ireland in scoping requests where necessary.

4. Assessing Tourism

There is no legal definition of 'tourism' in Irish legislation. The UNWTO definition of sustainable tourism is *"Tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities"*. This is widely accepted as a key definition of tourism as we move to a more sustainable future.

Tourism assessments are frequently carried out by economic consultants and by specific tourism consultants. It is always advisable, particular for tourism projects, that suitably qualified and experienced personnel are used to determine the impact of tourism related projects or to assess the impact of more general proposals on a tourism asset identified in a particular location. There is a requirement for EIAR under current legislation to contain a statement of competency within all EIAR documents, including screening and scoping reports.

Projects which involve a tourism element

Tourism projects are wide ranging and diverse. While there are some projects which cater to tourism and are easily identified as such - Hotels, Museums, etc. there are other projects where tourism is a key service or element, but which may not be immediately obvious – walking/cycling/forest trails, greenways, blueways, community facilities and others. EIAR conducted for developments containing tourist elements should be completed in accordance with the current guidance from the EPA.

Projects which include a tourism element can have potential for particular environmental effects which differ from a non-tourism development. These impacts can be intermittent, event related, inconsistent, dependent on weather, temporal, temporary or seasonal. This is considered within the prescribed environmental topics for EIAR outlined in Section 7 below.

Projects which may have an impact upon tourism

While tourism projects may be diverse, the projects which can impact tourism are considerably more wide ranging, from large infrastructural developments to local energy developments. Disruption to or suppression of a tourist resource or amenity can have very local or more strategic impacts, directly or indirectly- for example energy projects in a rural area can have both a negative and positive impact in different regards. There can be temporary, periodic or even seasonal impacts occurring during construction or operational periods.

According to the Fáilte Ireland Tourism Facts 2019 Report, the most important factors in determining the attractiveness of tourism destinations for visitors to Ireland are;

- Beautiful Scenery and Unspoiled Environment
- Hospitality
- Safety
- Nature, Wildlife and Natural Attractions
- History and Culture

- Pace of Life

These factors used for the promotion of tourism in Ireland are also barometers of sensitivity to change in tourism sensitive or dominant locations where development may have an impact upon the tourism asset. The potential for development to impact these sensitivities, and the environmental criteria under which they can be considered, are identified in section 7 of the guidelines.

5. Guiding Principles of EIAR

As outlined in the EPA EIAR Guidelines, the fundamental principles to be followed when preparing an EIAR, including screening and scoping, are:

- Anticipating, avoiding and reducing significant effects
- Assessing and mitigating effects
- Maintaining objectivity
- Ensuring clarity and quality
- Providing relevant information to decision makers
- Facilitating better consultation.

Environmental assessment should be undertaken in accordance with the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018.

6. Consideration of Competency and Qualifications

As per Section 2.5 of the EPA Guidelines, EIAR is required to be completed by '*competent experts*'.

Contributors to the preparation of environmental impact assessment reports, including screening and scoping assessments, should be qualified and competent. Sufficient expertise, in the relevant field of the project concerned, is required for the purpose of its examination by the competent authorities in order to ensure that the information provided by the developer is complete and of a high level of quality so that a full and proper assessment can be undertaken.

For tourism related projects, or projects likely to affect tourism assets, competent experts in the area of tourism should be utilised in the environmental assessment.

The competency of all involved in the production of an EIAR or any related report (e.g. Screening and scoping) is required to be stated at the beginning of the EIAR report with further details as necessary in each following chapter.

Where tourism projects involve for example heritage or cultural components, input from heritage consultants, conservation architects, or historians may be required.

7. EIAR Requirements

The following are the key requirements for an EIAR under the current guidance. This is not a definitive list and should be read in conjunction with regulations.

- project description;
- assessment of alternatives considered;
- baseline assessment;
- assessment of effects;
- cumulative impact;
- interaction of impacts;
- mitigation & monitoring; and
- residual impacts

Project Description

Project descriptions are required to describe the whole project including site, scale, design and key factors. It is important that the EIAR and design team have a consistent understanding of the development description in full. The key requirements are outlined in section 3.5 of the EPA Guidelines however they identify the following;

- the location of the project
- the physical characteristics of the whole project
- the main characteristics of the operational phase of the project
- an estimate, by type and quantity, of the expected residues and emissions

The location of the project should include identifying key sensitive receptors (including tourism receptors). In the operational phase of the project any tourism based, or potentially tourism related activity, should be identified.

Assessment of Alternatives

The assessment of the various reasonable alternatives is an important requirement of the EIA process.

Where tourism projects are location dependent the assessment of reasonable alternatives should consider alternative methods, layouts, technologies and mitigations, detail the key considerations culminating in the selection of the option/design, the reasoning for these and the environmental effect of these decisions. This is particularly important for tourism projects which are often location tied. The EPA EIAR Guidelines indicate that it is generally sufficient to provide a broad description of each main alternatives and the key issues associated with each, showing how environmental considerations were taken into account in deciding on the selected option.

Baseline Assessment

Baseline descriptions are evidence based, current descriptions of environmental characteristics with consideration of likely changes to the baseline environment evidenced in planning histories, unimplemented permissions, and applications pending determination. Baseline assessments should identify any tourism sensitivities in the zone of influence of a development. This zone of influence of a development is highly dependent on its **Context, Character, Significance,** and **Sensitivity**, as outlined in the EPA EIAR Guidelines. These characteristics apply to both the development and the environment.

For example, in a tourism context;

The location of sensitive tourism resources that are likely to be directly affected should be highlighted, and other premises which although located elsewhere, may be the subject of in combination impacts such as alteration of traffic flows or increased urban development.

The character of an area from a tourism perspective should be described and the principal types of tourism in the area. Where relevant, the specific environmental resources or attributes in the existing environment which each group uses or values should be stated and where relevant, indicate the time, duration or seasonality of any of those activities.

The significance of the tourism assets or activities likely to be affected should be highlighted. Reference to any existing formal or published designation or recognition of such significance should be included. Where possible the value of the contribution of such tourism assets and activities to the local economy should also be provided.

If there are any significant concerns or opposition to the development known to exist among tourism stakeholders and interest groups, this should be highlighted. Identify, where possible, the particular aspect of the development which is of concern, together with the part of the existing tourism resource which may be threatened or impacted.

In addition, the baseline should include any methodologies employed in the study to obtain information, if particular databases are used to locate sensitive receptors they should be acknowledged. In relation to tourism information, the suggested information sources at the end of this document are a non-exhaustive list which may be of assistance in identifying tourism receptors.

Impact Assessment

The topics for consideration of impact are prescribed in the EIA Directive and transcribed into Irish law by the European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018). Impact assessment should contain the likely significant effects of a development arising from both construction and operation of a development. Advice on describing the effects is contained within the EPA EIAR Guidelines and includes the **quality, significance, extent, probability, type** and **duration** of the effect, with particular descriptors for each. In describing effects upon tourism receptors these descriptors should take account of the particular aspects and sensitivities of tourism, for example a temporary annual effect from a development may have different impacts upon tourism if it falls at peak season rather than off-peak.

Impact assessment should be carried out as per EPA guidelines and the best practice for that prescribed topic. It may be considered appropriate to consider impact on tourism under the 'Population and Human Health' and / or 'Landscape' topics as suggested below.

Population and Human Health

The consideration of tourism projects within the Population and Human Health is extensive, with impacts ranging from rural employment population impacts of seasonal tourism, to the health impact of air pollution from increased traffic in urban areas.

The impact upon tourism can be considered within this section through the sensitivities of Hospitality, Safety and Pace of Life. Changes in population can impact the perception of pace of life or safety in a particular location. Impacts upon these issues in areas which rely heavily on tourism or have a particular sensitive tourism generator should be considered in this section. The EPA guidelines makes reference to amenity *"..which may be relevant under 'Population and Human Health' and 'Landscape'"*.

Biodiversity

Particular tourist activities can have a significant impact upon biodiversity. Landscapes which are 'unspoiled' can be attractors of tourism. However, the disturbance to ecology must be managed to minimise impacts.

Biodiversity is also a tourism asset and should be protected as such from other development and should be provided for in proposals where possible.

The assessment should also consider current Government policy on nature conservation as outlined in the National Biodiversity Action Plan 2017-2021 (NBAP) (and subsequent iterations (Including draft NBAP recently open for public consultation, to cover 2023 to 2027) which also includes Ireland's vision for biodiversity below.

'That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to efforts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally.'

Land, Soils and Geology

A link between tourism and this prescribed environmental factor, beyond the normal development impacts, is rare, however particular activities or facilities which use geological features may have an impact upon soils and geology, such as mountain biking trails, recreational uses of old quarries etc.

The impact upon Geotourism related to geoheritage within the natural environment, e.g., any impacts on UNESCO Global Geoparks, of which we currently have three on the island of Ireland; Copper Coast in Co. Waterford, Burren and Cliffs of Moher in Co. Clare, and Cuilcagh Lakelands in Cavan and Fermanagh should be considered (where applicable) in this section.

Indirect impacts such as material use for extensive landscaping and public realm should also be considered.

Water

Tourism uses can be water intense, depending on development type. Recreational use of a surface water feature, water-based leisure centres etc have different impacts to standard development.

Air Quality and Climate

Tourism impact upon air quality is dependent on the activity proposed and sensitivity of the location. If the tourism project includes a large increase in transportation services, collection of baseline air emission data is advised. Transportation emissions affect not only air quality, but also greenhouse gases. Changing climatic patterns due to climate change should be factored into this analysis.

Noise and Vibration

A link between tourism and this prescribed environmental factor, beyond the normal development impacts, is rare, however the impact upon tourism of issues of noise and vibration can be significant. Construction adjoining hotels for example should consider the sensitivity of the development and ensure mitigation is in place.

Material Assets; Traffic and Transport

The different transport patterns associated with tourism activities is a key impact of tourism and should be considered especially for tourism projects. These produce temporal and seasonal changes on the norm and specialist consideration and interpretation should be given. Tourism proposals should, where possible, be well served by public transport and should be accessible by modes other than the car. The impact of traffic on tourism assets can be substantial and can vary in severity according to season, the weather, etc. The impact of construction traffic can be a particular concern in tourism sensitive areas in terms of noise pollution and visual impact. The construction programme of developments should work to

avoid peak tourism periods in tourism areas and should consider planned or anticipated tourism events and festivals.

Cultural Heritage

Cultural heritage can be a key component of tourism projects and the impact of tourism on the maintenance of cultural heritage should be given the utmost consideration, whether positive or negative. As a tourism attraction, cultural heritage should be strongly considered in non-tourism developments and the impact upon tourism considered as a potential impact.

Archaeology

Archaeology can be of tourism interest and can be an attractive or key component of tourism projects. Archaeology can be a tourism attractor and given that national policy emphasis on the non-renewable nature of the archaeology and archaeological heritage, focus should be a presumption in favour of its preservation in-situ or where preservation in-situ is not the option chosen, there must be preservation by record (i.e. archaeological excavation and recording must take place) in line with statutory requirements.

Material Assets; Waste Management

Tourism is a resource heavy activity and can impact waste streams and waste segregation. Impacts here should be considered strongly and with knowledge of the variation that arises from the particular tourist activity. Waste and Waste disposal issues can also impact the perception of an unspoiled environment, effecting tourism, which should be considered.

Material Assets

Material assets outside of the material assets already referenced that should be considered are built services (utilities) and infrastructure. Tourism development should include impact assessment on built services (utilities) and infrastructure while non tourism related development should consider the effect on tourism, which should be considered.

Landscape

The visual impact of a tourism development, especially in locations which are visually sensitive or renowned for their scenic or landscape beauty, should be considered carefully. A development intended to utilise or enjoy a particular vista or environment should minimise impact upon that environment.

Major Accident and Natural Disaster

There is a requirement for tourist developments to describe expected significant effects on the environment of the proposed development's vulnerability to major accidents and/or natural disasters relevant to it. Where appropriate measures should be identified to prevent or mitigate the significant adverse effects of such accidents or disasters, including resulting from climate change, on the environment and detail the preparedness for the proposed response.

Interaction of Impacts

Where two or more environmental impacts combine or interact they should be considered under the prescribed topics. It is best practice to provide a table of interactions within an EIAR or EIA Screening Report.

Cumulative Impact

The cumulative impact is that of the project combined with any known likely project which will interact or compound an environmental impact.

Transboundary Impact

Transboundary impacts should be included in EIAR. In the case of tourism, especially international travel, the transboundary impacts may not be proximate to the EIAR site.

Mitigation & Monitoring

Mitigation should follow the hierarchy of minimisation in descending order of preference- Avoid, Reduce, Remedy.

Avoid sensitive tourism resources- such as views, access and amenity areas including habitats as well as historical or cultural sites and structures.

Reduce the exposure of sensitive resources to excessive environmental impact.

Reduce the adverse effects to tourism land uses and patterns of activities, especially through interactions arising from significant changes in the intensity of use or contrasts of character or appearance.

Remedy any unavoidable significant residual adverse effects on tourism resources or activities.

Mitigation measures must be measurable and achievable within the bounds of the project.

With regard to Monitoring, Article 8a of the EIA Directive requires that:

1. 'The decision to grant development consent shall incorporate at least the following information …
(b) any environmental conditions attached to the decision, a description of any features of the project and/or measures envisaged to avoid, prevent or reduce and, if possible, offset significant adverse effects on the environment as well as, where appropriate, monitoring measures. … 4 Member States shall ensure that the features of the project and/or measures envisaged to avoid, prevent or reduce and, if possible, offset significant adverse effects on the environment are implemented by the developer, and shall determine the procedures regarding the monitoring of significant adverse effects on the environment. The type of parameters to be monitored and the duration of the monitoring shall be proportionate to the nature, location and size of the project and the significance of its effects on the environment. Existing monitoring arrangements resulting from Union legislation other than this Directive and from national legislation may be used if appropriate, with a view to avoiding duplication of monitoring.'

Residual Impacts

The residual impacts are the final predicted or intended impacts which occur after the proposed mitigation measures have been implemented.

8. Sources of information on Tourism

Information available online

Fáilte Ireland

Fáilte Ireland offers detailed research analysis and insights into the Irish Tourism Industry. The National Tourism Development Authority has a portfolio of research across a number of areas including facts and figures, Environmental Surveying and Monitoring, briefing papers and reports and visitor feedback. The Fáilte Ireland website has a dedicated research library which can be accessed here

Fáilte Ireland also manages an environmental surveying and monitoring database as part of the Wild Atlantic Way Operational Programme which can be accessed here. The purpose of this is to work with and demonstrate to our stakeholders and partners that we are committed to the sustainable development of the Wild Atlantic Way, and to be able to pre-empt and avoid environmental effects in the future should they occur.

Discover Ireland:

Operated by Fáilte Ireland, the Discover Ireland website includes comprehensive information on tourist attractions in destinations all around Ireland, including listings for activities, accommodation, events and experiences for every county, major town and region in Ireland. The website features elements from the four destination brands – Wild Atlantic Way, Ireland's Ancient East, Ireland's Hidden Heartlands and Visit Dublin and can be accessed here.

Tourism Ireland

Tourism Ireland is responsible for marketing the island of Ireland overseas as a holiday and business tourism destination. Tourism Ireland publishes a range of research documents including; visitor facts and figures, seasonal updates and industry insights which are accessible here

Local Authorities

Local Authorities are an invaluable source of information. They produce tourism strategies and audits of tourism assets within their jurisdiction. Local authorities will also produce landscape and seascape studies. Protected views and prospects as well as the record of protected structures and other designated protected buildings are contained within the Statutory Development Plans.

Regional Assemblies

Regional Assemblies can also be consulted on high level strategic tourism and potential Regional Spatial and Economic Strategies (RSESs) should be consulted.

Central Statistics Office

The Central Statistics Office (CSO) is Ireland's national statistical office and their purpose is to impartially collect, analyse and make available statistics about Ireland's people, society and economy. The Tourism and Travel Section of the Central Statistics Office is the major source for tourism statistics in Ireland and is updated regularly.

From: Michael McPartland <Michael.McPartland@fisheriesireland.ie>
Sent: Wednesday 15 January 2025 11:39
To: Martina Keenan Rivero
Subject: Environmental Impact Assessment Report (EIAR) for continued quarrying operations- Ardcahan Quarry, Dunmanway, Co. Cork

NOTE: *This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.*

Martina

Thank you for your email regarding the above-mentioned.

The site of the proposed development encompasses the Bandon River catchment and tributaries, significant salmonid fisheries. In this context IFI would ask that the following requirements should be taken into consideration.

There should be no drainage or other physical interference with the bed or bank of any watercourse without prior consultation with IFI.

Suspended solids and or hydrocarbon contaminated site run-off waters must be controlled adequately so that no pollution of surface waters can occur.

In the event of any watercourse crossings being bridged or culverted the following general criteria should apply,

(i) The free passage of fish must not be obstructed.
(ii) The original slope of the river bed should be maintained with no sudden drops on the downstream side. Design details on any proposed crossing should be incorporated at planning stage
(iii) Bridges are preferable to culverts.
(iv) All instream works should be carried out only in the July-September period.

Full cognisance should be given to IFI "Guidelines on protection of fisheries during construction works in and adjacent to waters"

https://www.fisheriesireland.ie/media/guidelines-on-protection-of-fisheries-during-construction-works-in-and-adjacent-to-waters

Michael Mc Partland
Senior Fisheries Environmental Officer.

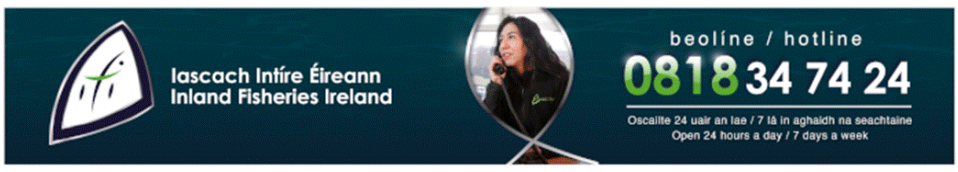
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Help Protect Ireland's Inland Fisheries

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Our confidential phone number is 0818 34 74 24, which is open 24 hours a day / 7 days a week.

To read our Privacy Policy and Email Disclaimer Notice, Please visit www.fisheriesireland.ie

From: Macroom Info <Macroom@fisheriesireland.ie>
Sent: Friday 29 November 2024 12:11
To: Michael McPartland <Michael.McPartland@fisheriesireland.ie>
Subject: FW: EIAR Consultation

From: Martina Keenan Rivero <mrivero@mhplanning.ie>
Sent: Friday 29 November 2024 11:32
To: Macroom Info <Macroom@fisheriesireland.ie>
Subject: EIAR Consultation

Dear Sir/Madam,

Please find attached correspondence in connection with:

Pre-application consultation on the preparation of: (1) a Remedial Environmental Impact Assessment Report (rEIAR) for quarrying development that took place between 1990 and 2014, and (2) an Environmental Impact Assessment Report (EIAR) for continued quarrying operations.
Location:. Ardcahan Quarry, Dunmanway, Co Cork

To assist the EIAR Team in scoping the extent of information required about the Project and its likely environmental effects, we are seeking comments from statutory authorities and other stakeholders. Your early input will greatly assist in preparing the EIAR. All comments should be sent to McCutcheon Halley Planning by COB Friday, 17th January 2025.

Comments or queries can be directed to Martina Keenan Rivero at mrivero@mhplanning.ie or Cora Savage at csavage@mhplanning.ie

Kind regards,
Martina

Martina Keenan Rivero
Associate Director
McCutcheon Halley
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For the attention of Martina Keenan Rivero/Cora Savage

McCutcheon Halley

6 Joyce House,
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13th January, 2024

By Email: mrivero@mhplanning.ie & csavage@mhplanning.ie

Re: EIA Scoping Request – Pre-application consultation on the preparation of: (1) a Remedial Environmental Impact Assessment Report (rEIAR) for quarrying development that took place between 1990 and 2014, and (2) an Environmental Impact Assessment Report (EIAR) for continued quarrying operations at Ardcahan Quarry, Dunmanway, Co. Cork

Dear Martina Keenan Rivero/Cora Savage,

Uisce Éireann has received notification of your Environmental Impact Assessment (EIA) scoping request in relation to substitute consent application for historical quarrying activity that took place at Ardcahan Quarry, Dunmanway, Co. Cork between 1990 and 2014.

Please see attached, Uisce Éireann's scoping opinion in relation to Water Services. On receipt of the planning referral, Uisce Éireann will review the finalised Environmental Impact Assessment Report (EIAR) as part of the planning process.

Queries relating to the terms and observations above should be directed to planning@water.ie

Yours sincerely,

PP Ali Robinson

Signed on behalf of Dermot Phelan
Connection & Developer Services

Stiúrthóirí / Directors: Tony Keohane (Cathaoirleach / Chairman), Niall Gleeson (POF / CEO), Christopher Banks, Fred Barry, Gerard Britchfield, Liz Joyce, Patricia King, Eileen Maher, Cathy Mannion, Michael Walsh.
Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin, Ireland D01NP86
Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Uisce Éireann is a design activity company, limited by shares.
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UE / LH / OP6000 / 0323

Uisce Éireann's Response to EIA Scoping Requests

At present, Uisce Éireann does not have the capacity to advise on the scoping of individual projects. However, in general the following aspects of Water Services should be considered in the scope of an EIA where relevant;

a) Where the development proposal has the potential to impact an Uisce Éireann Drinking Water Source(s), the applicant shall provide details of measures to be taken to ensure that there will be no negative impact to Uisce Éireann's Drinking Water Source(s) during the construction and operational phases of the development. Hydrological / hydrogeological pathways between the applicant's site and receiving waters should be identified as part of the report.

b) Stormwater Run Off and Hydrocarbons
The potential impacts arising from run off and hydrocarbon during construction, operational and decommissioning phases should be addressed to include mitigations against contaminants entering groundwater and surface waters via hydrological and hydrogeological pathways.

c) Where the development proposes the backfilling of materials, the applicant is required to include a waste sampling strategy to ensure the material is inert.

d) Mitigations should be proposed for any potential negative impacts on any water source(s) which may be in proximity and included in the environmental management plan and incident response.

e) Any and all potential impacts on the nearby reservoir as public water supply water source(s) are assessed, including any impact on hydrogeology and any groundwater/ surface water interactions.

f) Impacts of the development on the capacity of water services (*i.e. do existing water services have the capacity to cater for the new development*). This is confirmed by Uisce Éireann in the form of a Confirmation of Feasibility (COF). If a development requires a connection to either a public water supply or sewage collection system, the developer is advised to submit a Pre-Connection Enquiry (PCE) enquiry to Uisce Éireann to determine the feasibility of connection to the Uisce Éireann network. All pre-connection enquiry forms are available from https://www.water.ie/connections/connection-steps/.

g) The applicant shall identify any upgrading of water services infrastructure that would be required to accommodate the proposed development.

h) In relation to a development that would discharge trade effluent – any upstream treatment or attenuation of discharges required prior to discharging to an Uisce Éireann collection network.

i) In relation to the management of surface water; the potential impact of surface water discharges to combined sewer networks and potential measures to minimise and or / stop surface waters from combined sewers.

j) Any physical impact on Uisce Éireann assets – reservoir, drinking water source, treatment works, pipes, pumping stations, discharges outfalls etc. including any relocation of assets.

k) When considering a development proposal, the applicant is advised to determine the location of public water services assets, possible connection points from the applicant's site / lands to the public network and any drinking water abstraction catchments to ensure these are included and fully assessed in any pre-planning proposals. Details, where known, can be obtained by emailing an Ordnance Survey map identifying the proposed location of the applicant's intended development to datarequests@water.ie

l) Other indicators or methodologies for identifying infrastructure located within the applicant's lands are the presence of registered wayleave agreements, visible manholes, vent stacks, valve chambers, marker posts etc. within the proposed site.

m) Any potential impacts on the assimilative capacity of receiving waters in relation to Uisce Éireann discharge outfalls including changes in dispersion / circulation characterises. Hydrological / hydrogeological pathways between the applicant's site and receiving waters should be identified within the report.

n) Any potential impact on the contributing catchment of water sources either in terms of water abstraction for the development (*and resultant potential impact on the capacity of the source*) or the potential of the development to influence / present a risk to the quality of the water abstracted by Uisce Éireann for public supply should be identified within the report.

o) Where a development proposes to connect to an Uisce Éireann network and that network either abstracts water from or discharges wastewater to a "protected"/ sensitive area, consideration as to whether the integrity of the site / conservation objectives of the site would be compromised should be identified within the report.

p) Mitigation measures in relation to any of the above ensuring a zero risk to any Uisce Éireann drinking water sources (Surface and Ground water).

This is not an exhaustive list.

Please note;

• Where connection(s) to the public network is required as part of the development proposal, applicants are advised to complete the Pre-Connection Enquiry process and have received a Confirmation of Feasibility letter from Uisce Éireann ahead of any planning application.

• Uisce Éireann will not accept new surface water discharges to combined sewer networks.

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Ref: G Pre Planning-CK-Ardcahan Quarry

19 February 2024

McCutcheon Halley Walsh
6 Joyce House
Barrack Square
Ballincollig
Co Cork

Development: Murray Brothers Tarmacadam Ltd. (1) a Remedial Environmental Impact Assessment Report (rEIAR) for quarrying development that took place between 1990 and 2014, and (2) an Environmental Impact Assessment Report (EIAR) for continued quarrying operations.

A Chara,
I refer to correspondence received in connection with the above.
Outlined below are heritage-related observations/recommendations of the Department co-ordinated by the Development Applications Unit under the stated heading:

Nature Conservation

The proposed Ardcahan Quarry application area lies directly adjacent to a tributary of and is hydrologically connected to the River Bandon, Co. Cork located 320m away from the application area. The tributary of the River Bandon runs along the eastern boundary of the proposed development, this tributary flows into the main Bandon River channel, c 320m away. Consideration should be given to the siting and proximity of additional quarry operations in close proximity to ecologically sensitive aquatic habitats and species. In this regard the following information should be included in any assessment of the proposed development.

The River Bandon Special Area of Conservation (SAC) (Site Code 002171) is located downstream of the proposed development. The qualifying interests (QI) for the SAC are the following EU Habitats Directive Annex I/II habitats and species;

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0]
- *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029]
- *Lampetra planeri* (Brook Lamprey) [1096]

A dedicated Freshwater Pearl Mussel (FWPM) Survey and a Brook Lamprey Survey in accordance with best practice methodology at the appropriate time of year by appropriately qualified, experienced specialist aquatic ecologist (s) (>10 years surveying experience) is recommended to fully inform an accurate assessment of the potential for adverse impacts upon Bandon River SAC.

The Bandon River and its tributaries are also particularly important for Annex II protected species, Atlantic Salmon *Salmo salar* and Otter *Lutra lutra* which is present within the receiving watercourses (River Bandon and its tributaries) of the proposed development site. In addition to the aforementioned species and habitats the surrounding area also includes the following ecologically sensitive receptors;

i. **Annex I Peregrine Falcon** *Falco peregrinus* – the quarry is a long established breeding site for Peregrine falcon who nest in the quarry face of the existing quarry. The NPWS ranger C. Deasy recorded two Peregrine chicks at Ardcahan Quarry during the breeding season of 2024. The site is also used by Peregrine falcon outside the bird breeding season as a year round roosting and feeding site.

ii. **Common Kestrel** *Falco tinnunculus*- a red listed species of 'High conservation concern' (BoCCI, 2021) was recorded by the NPWS Ranger C. Deasy to be breeding within the Ardcahan Quarry in 2024. The nest site was located within a crevice of the quarry face.

iii. **Sparrowhawk** *Accipiter nisus* – currently green listed this raptor species was recorded breeding onsite in woodland adjacent to the quarry operations.

iv. **Annex II & IV Bat species**- which are strictly protected and listed in Annex IV of the EU Habitats Directive (Council Directive 92/43/EEC). A full assessment of site usage by bats should be carried out as part of the proposed development including breeding and wintering usage of the site. There is potential for bats to be using the crevices of the quarry face, local buildings, bridges and trees as roosting and/or breeding sites. There is good quality bat foraging habitats onsite and in the surrounding area along the local tributary of the Bandon River, the Bandin Rive itself and over the native Oak-Birch-Holly woodland onsite and over the quarry ponds which have become naturalised over time. The Annex II and II Lesser Horse Shoe Bat *Rhinolophus hipposideros* is known to occur in the local area, bat surveys should include and specifically take account of the potential for this species within the application area and in the surrounding zone of potential impact. The potential impact of the proposed development on both roosting and foraging bats should be fully assessed.

v. **Annex I Habitats-** The site of the quarry was originally an area of old native woodland as can be seen from an examination of the historical 6 Inch mapping for this area and from an examination of the remnant woodland onsite and in the adjacent area. This native woodland type is likely to have been Oak-Birch Holly woodland (WN1). The existing quarry site supports habitat of existing or potential Annex I quality e.g Annex I European dry heaths 4030. There are also areas of the worked quarry which have become naturalised over time with aquatic habitats and semi-natural grassland habitat present onsite. The following

habitats should be included but not limited to a full assessment of the potential impacts from the proposed development;

a. **Annex I European dry heaths 4030**- Dry siliceous heath HH1 Habitat located in the north east of the site corresponds to the broader annexed habitat, 'European dry heaths 4030';
b. **Oak Birch Holly Native Woodland(WN1) and potential for the occurrence of Annex I quality Old sessile oak woods with Ilex and Blechnum 910A-** located in the north west of the quarry site and along the tributary of the Bandon River;
c. Aquatic habitats- local watercourses and naturalised quarry ponds;
d. Semi-natural grassland, Marsh and Reedbed habitats;
e. An area of Blanket Bog (PB2)/Wet Heath HH3 is located to the north of the proposed development, if any works are proposed for this area a full assessment of the potential impacts on the habitat and species it supports is required;

vi. **Whooper swan**- a species listed on Annex I of the EU Birds Directive (Council Directive 2009/147/EC) have been recorded in good numbers (c 100 individuals)foraging and roosting in the vicinity of the proposed development along the Bandon River floodplains. The closest flock (c 40 individuals) forage in fields along the Bandon River c 5km to the south east of the proposed development. While diurnal Whooper Swan flight paths are not thought to occur over the proposed development area there may be potential migratory flight paths at certain times of the year (Autumn and Spring). Consideration of same should be included in the proposed development application particularly if new overhead lines are proposed.

vii. **Annex II Otter** are known to be present in the area and are thought to breed along the River Bandon and its tributaries upstream and downstream of the proposed development site;

viii. **Snipe**, a red listed species of high conservation concern (BoCCI, 2021) for both its breeding and wintering populations.

ix. **Invertebrates-** based on the ecologicall sensitive habitats present onsite (Dry heath, Aquatic habitats, Old established Native Oak- Birch-Holly Woodland) and adjacent to the proposed development an invertebrate survey is required to be carried out to identify any sensitive species present e.g. dragonflies, Lepidoptera surveys;

x. **Bandon River flood plain**- is an area of biodiversity importance for aquatic/riparian habitats and the species they support (including Dipper, Grey wagtail, Sand Marten, Swift, Otter, Brook lamprey, Salmon, Trout amongst others). Wintering water birds including Lapwing, Golden Plover, Tufted duck, Green sandpiper, Common Coot, Mallard, Mute Swan, Little Grebe and Annex I Whooper Swans.

Freshwater Pearl Mussel

The proposed Ardcahan Quarry development lies directly adjacent to and is hydrologically connected to the River Bandon which is within a **sensitive Freshwater Pearl Mussel Zone** (See Figure 1.0) or '**Margaritifera Sensitive Area'** containing **'Catchments of other extant populations'** of Freshwater Pearl Mussel. The proposed Ardcahan Quarry application area lies directly adjacent to a tributary of and is hydrologically connected to the River Bandon, Co. Cork located 320m away from the application area. The tributary of the River Bandon runs along the eastern boundary of the proposed development, this tributary flows into the main Bandon River channel, c 320m away. Consideration should be given to the siting and proximity of additional quarry operations in close proximity to ecologically sensitive aquatic habitats and species. In this regard the following information should be included in any assessment of the proposed development.

The River Bandon Special Area of Conservation (SAC) (Site Code 002171) is located downstream of the proposed development. The qualifying interests (QI) for the SAC are the following EU Habitats Directive Annex I/II habitats and species;

- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]
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A dedicated Freshwater Pearl Mussel (FWPM) Survey and a Brook Lamprey Survey in accordance with best practice methodology at the appropriate time of year by appropriately qualified, experienced specialist aquatic ecologist (s) (>10 years surveying experience) is recommended to fully inform an accurate assessment of the potential for adverse impacts upon Bandon River SAC.

The Bandon River and its tributaries are also particularly important for Annex II protected species, Atlantic Salmon *Salmo salar* and Otter *Lutra lutra* which is present within the receiving watercourses (River Bandon and its tributaries) of the proposed development site. In addition to the aforementioned species and habitats the surrounding area also includes the following ecologically sensitive receptors;

xi. **Annex I Peregrine Falcon** *Falco peregrinus* – the quarry is a long established breeding site for Peregrine falcon who nest in the quarry face of the existing quarry. The NPWS ranger C. Deasy recorded two Peregrine chicks at Ardcahan Quarry during the breeding season of 2024. The site is also used by Peregrine falcon outside the bird breeding season as a year round roosting and feeding site.

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a. **Annex I European dry heaths 4030**- Dry siliceous heath HH1 Habitat located in the north east of the site corresponds to the broader annexed habitat, 'European dry heaths 4030';

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c. Aquatic habitats- local watercourses and naturalised quarry ponds;

d. Semi-natural grassland, Marsh and Reedbed habitats;

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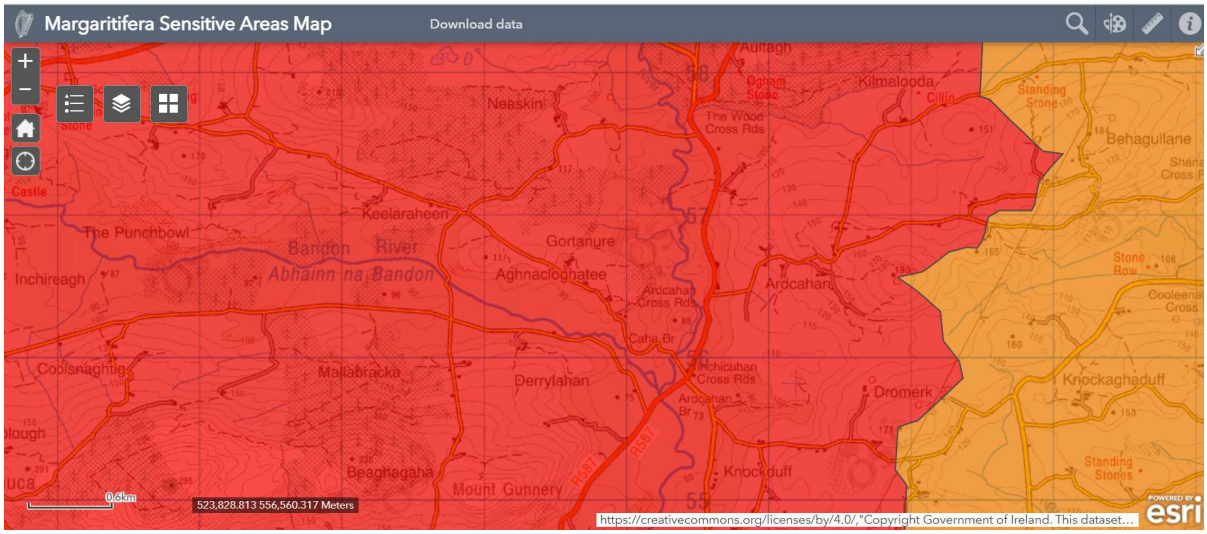


Figure 1 Margaritifera Sensitive Areas Map

The Freshwater Pearl Mussel is one of Ireland's most endangered species and for which Ireland supports up to 46% of the EU population. The River Bandon in this area contains extant populations of the EU Habitats Directive Annex II protected species the Freshwater Pearl Mussel. NPWS hold Freshwater Pearl Mussel records both upstream and downstream (Baxters Bridge) of the proposed quarry development. The decline of the freshwater pearl mussel has resulted from failure to recruit young mussels to populations. The cause of these recruitment failures is damage to the species' habitat, specifically through hydrological, sedimentation, other morphological and enrichment impacts.

The species is extremely sensitive to environmental perturbations, owing to its complex life-cycle and vulnerable habitat. Juvenile and young freshwater pearl mussels are even more sensitive than adult mussels, as they live buried in the substratum for five or more

years. Subtle changes in hydrology can lead to erosion and permanent loss of juvenile substratum, as well as damage through habitat exposure during low-flow. Hydrological changes can also exacerbate sedimentation and enrichment impacts. Sediment settling on and in the river bed creates a physical barrier to water circulation, depriving buried mussels of an oxygen supply. By clogging interstitial spaces, fine sediment may also prevent new juveniles from moving into the substratum. Increased nutrient loads promote growth of filamentous algae, diatoms and other algae that also act as physical barriers between the open water and the river bed. Where mussel habitat is impacted by increases in both fine sediment and nutrients, rooted plants expand and tend to further exacerbate the problem. Respiration of rooted plants and algae causes night-time drops in oxygen in mussel habitats.

Recommendations

Dedicated Freshwater Pearl Mussel surveys by appropriately qualified, experienced (>10 years fresh water pearl mussel surveying experience) and fully licenced surveyors is recommended to fully map the distribution and abundance of Freshwater Pearl Mussel in the Bandon River and its tributaries upstream and downstream in the zone of influence of the proposed development. Adhering to the mitigation hierarchy by implementing mitigation by avoidance in the first instance based on the results of the survey should be undertaken.

Annex II Otter *Lutra lutra*

The Bandon River and its tributaries that lie adjacent to the proposed development site support habitats that are particularly important to the Annex II protected species, Otter *Lutra lutra* which are known to breed within the receiving watercourses in and around the proposed development site.

Recommendations

A dedicated Otter survey at the appropriate time of year by appropriately qualified, experienced (>10 years Otter surveying experience) aquatic ecologist (s) is recommended to fully map the distribution and abundance of Otter holts and areas of importance to Otter on the Bandon River and its tributaries upstream and downstream in the zone of influence of the proposed development. As Otter breeding and resting sites are sensitive information any records such as these will not be put in a public report but will be treated as confidential and only shared with NPWS and the Cork County Council Planning Department. Adhering to the mitigation hierarchy by implementing **mitigation by avoidance** in the first instance when looking at site location and site design based on the results of the survey should be undertaken.

Bat and mammal surveys

Potential for bat usage or transiting through the proposed development site should assessed fully given the habitats of high potential for foraging and roosting bat species including native woodland, aquatic habitats (Bandon River and tributary, Riparian habitat, naturalised quarry ponds) present and roost potential in quarry face, trees and local bridges/dwellings. Mammal surveys should also be conducted based on habitats onsite (Woodland, scrub).

Recommendations

A baseline bat survey should be conducted in line with best practice and for key periods of the bat life cycle including the breeding and wintering/hibernation season. Active and passive bat surveys are required including the use of Thermal technology to fully quantify bat usage of this proposed development site and surrounding area as appropriate including the Bandon River and its tributary. Local bridges and trees with potential for bat usage in the zone of impact shall also be included in the bat survey. Bat surveys shall be carried out by an appropriately qualified and experienced bat ecologist and surveyed for the breeding and winter/hibernation season to fully establish bat usage throughout the year.

Aquatic Surveys

The proposed development lies in close proximity to ecologically sensitive and significant aquatic habitats. The River Bandon and its tributaries are zoned as a Freshwater Pearl Mussel sensitive area, these aquatic habitats also support breeding Atlantic salmon and other Salmonids, as well as Annex II listed Brook Lamprey and Otter. Bird species such as the Annex I Kingfisher, Dipper, Grey wagtail, Grey Heron also rely on the aquatic habitats for food, shelter and breeding sites. Specialist aquatic surveys (flora, fauna (birds, mammals, invertebrate, fish) are required in this regard. Aquatic ecological surveys shall be carried out by specialist aquatic ecologists with appropriate qualifications and experience in accordance with best practice to inform a baseline aquatic ecological assessment which can be used to inform location and design of the proposed development.

Hydrological Impacts, Water Quality & Water Abstraction

The potential for adverse ex-situ impacts on the QI of Bandon River SAC and more generally to ecological receptors in the receiving environment as a result of the potential changes to hydrology and water quality as a result of water abstraction and potential pollution events from the proposed development should be assessed in detail to fully identify any direct or indirect impacts which may arise alone or in combination with other pressures on NATURA

2000 sites and its qualifying features. This should be adequately assessed in the current application.

Recommendations

A detailed ecohydrological assessment (surface and groundwater) is required for the proposed development and an assessment of changes in hydrology/water quality/water levels in relation to the QI of Bandon River SAC as well as all other aquatic and ecological receptors in the area is required as part of the updated Ecological Impact assessment for the proposed development. The potential impacts on surface and groundwater should be fully assessed in detail with abstraction volumes clarified. Future scenarios/models incorporating the potential impacts from climate change (extreme weather events/flooding, drought, low water levels) are to form part of any assessment of potential adverse impacts in the Appropriate Assessment reporting and the Ecological Impact Assessment.

Mitigation Hierarchy- Mitigation by Avoidance

The EU Biodiversity strategy 2020[1] which was subsequently built upon by the EU Biodiversity Strategy 2030 aimed to halt and reverse the loss of biodiversity and ecosystem services. Among its targets and actions was Target 2, Action 7: **Ensure no net loss of biodiversity and ecosystem services (NNL)**. A Guidance document entitled "Guidance on achieving no net loss or net gain of biodiversity and ecosystem services"[2] has been published to support EU 2030 Biodiversity Strategy's objective of putting EU biodiversity on the track to recovery for the benefit of people, climate and the planet by 2030.

In this guidance the mitigation hierarchy is outlined as follows;

'A fundamental and universally held principle is that appropriate actions to achieve NNL (or preferably a net gain) should be carried out in the following order of priority in accordance with the mitigation hierarchy:

[1] Communication on our life insurance, our natural capital: an EU biodiversity strategy to 2020, COM(2011) 244 final.

[2] Tucker, G.M., Quétier, F. & Wende, W. (2020) Guidance on achieving no net loss or net gain of biodiversity and ecosystem services. Report to the European Commission, DG Environment on Contract ENV.B.2/SER/2016/0018, Institute for European Environmental Policy, Brussels.

1. ***Avoidance****: measures taken to avoid creating detrimental impacts from the outset, such as careful spatial or temporal placement of elements of infrastructure, in order to completely avoid impacts on certain components of biodiversity.*

2. ***Minimisatio****n: measures taken to reduce the duration, intensity and/or extent of detrimental impacts (including direct, indirect and cumulative impacts, as appropriate) that cannot be completely avoided, as far as is practically feasible.*

3. ***Rehabilitation/restoration****: measures taken to rehabilitate degraded ecosystems or restore cleared ecosystems following exposure to impacts that cannot be completely avoided and/or minimised.*

4. ***Offset****: measures taken to compensate for any residual significant, adverse impacts that cannot be avoided, minimised (and/or in some cases) rehabilitated or restored, in order to achieve at least NNL of BES. In other words, emphasis should be given to avoidance of significant adverse impacts at source as the first objective (as well as seeking opportunities to enhance BES). When this is insufficient, it should be followed by measures to reduce or minimise unavoidable impacts. It is only when all the previous appropriate measures of the mitigation hierarchy remain insufficient to avoid negative BES impacts that biodiversity offsetting should be used.*

As defined by BBOP (2012d[3]), 'Biodiversity offsets are measurable conservation outcomes resulting from actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure and ecosystem function and people's use and cultural values associated with biodiversity'

<u>Recommendations</u>

In the context of the aforementioned policies and best practice guidance on EU Biodiversity Strategies, No net loss of biodiversity and mitigation by avoidance in line

[3] BBOP (2012d) Standard on Biodiversity Offsets. Business and Biodiversity Offsets Programme (BBOP), Washington, DC.

with the mitigation hierarchy is required to avoid and/or reduce the potential negative impacts on biodiversity.

Disturbance and displacement from the proposed development activities (lighting, noise, human disturbance) are of concern. Potential for water quality incidents are also of concern from activities such as fuel storage area, gravel processing site operations, waste water/sewage. An assessment of the site design and the potential for adverse impacts of sensitive ecological receptors is recommended in this regard.

You are requested to send any further communications to this Department's Development Applications Unit (DAU) at referrals@npws.gov.ie, where used, or to the following address:

The Manager
Development Applications Unit (DAU)
Government Offices
Newtown Road
Wexford
Y35 AP90

Is mise, le meas



David O'Connor
Development Applications Unit
Administration

Seirbhís Sláinte Níos Fearr á Forbairt | Building a Better Health Service

EMH EMERGENCY MANAGEMENT HEALTH

HSE South Emergency Management Consultation Report

Report to	**Adrian O'Sullivan PEHO South Lee (West Cork)**	**Date**	**19th Dec., 2024**
Type of consultation: EIS □ Scoping □ Screening □ EIAR □ EPA □ **Other (please specify): SID Application (Strategic Infrastructure Development Application)**			
Authority	**Cork County Council HSE**		
Reference Number	**EHIS No. 4422**		
EM Reference Number	**EMENV 220**		
Applicant	**McCutcheon Halley, Planning Consultants, for Murray Brothers Tarmacadam Limited**		
Proposal	**Continued quarrying operations at Ardcahan, Dunmanway, Co. Cork.**		

HSE South Emergency Management Observations: Please be advised that the HSE South Emergency Management function does not have any specific observations to make with respect to this application. However, please note the following recommendations within the context of site operations:

1. Should an incident occur at the site and the site operator requires the assistance of the emergency services, the incident information should be provided in the `ETHANE` format (please see attached).
2. Emergency Services access to the site should be clearly identified. This should be undertaken via appropriate high visibility signage, i.e.; a green sign with a yellow border and white lettering citing the abbreviation RVP
3. The site should have a mechanism in place to account for personnel during an evacuation in order to provide the responding emergency services with an estimate of the number of people accounted and unaccounted for.
4. The site should identify any critical / vulnerable facilities within the geographical catchment area, such as hospitals, schools, nursing homes, etc, that could be directly or indirectly affected by an incident at the site.
5. Where the `off-site` impacts of an incident at the site affects a vulnerable cohort / population such as children within crèches, schools; patients / clients / residents within nursing homes, etc; the emergency services will require assistance from the site operator in determining the impact on the local community.
6. The site operator is encouraged to develop a business continuity plan that includes a plan for severe weather. For more advice on this, please see the Department of Business, Enterprise and Innovation, *Business Continuity Planning in Severe Weather.* https://dbei.gov.ie/en/Publications/Publication-files/Business-Continuity-Planning-in-Severe-Weather-Check-List-for-Businesses.pdf

All correspondence or any queries with regard to this report should be forwarded to Ms. Maryanne Horgan, Emergency Management Office, HSE South, Eye, Ear and Throat Hospital, Western Road, Cork, T12 WP62 or maryanne.horgan@hse.ie

An tOifig Náisiúnta um Sláint Chomhshaoil

Feidhmeannacht na Seirbhíse Sláinte,Urlár 2, Teach na Darach, Ascaill na Teile
Páirc na Mílaoise, An Nás,

Co. Chill Dara.

National Office for Environmental Health Services

2nd Floor, Oak House, Lime Tree Avenue

Millennium Park, Naas, Co. Kildare

Eircode: W91KDC2

Env.CCNSU@hse.ie

HSE EIA Scoping

Environmental Health Service Submission Report

Date: 15/01/2025

Our reference: EHIS 4422

Report to: McCutcheon Halley Planning Consultants, 6 Joyce House, Barrack Square, Ballincollig, Cork, P31 YX97, Email: mrivero@mhplanning.ie

Type of Consultation: rEIA Scoping Application for proposed continued quarrying operations at Ardcahan Quarry, Dunmanway, Co. Cork

Proposed development: SID Application for continued quarrying operations at Ardcahan Quarry, Dunmanway, Co. Cork

Details of the application were circulated to the following HSE stakeholders on 4/12/2024:

- HSE South Emergency Management
- National Capital Estates Office – Regional AND
- Director of National Health Protection
- REO South West

Introduction and Proposed site location

The existing quarry is located at Ardcahan, approximately 5km north-east of Dunmanway in County Cork. The quarry is accessed from a minor road close to its junction with Regional Road R587 at Inchicahan Cross Roads.

The regional road links Dunmanway to the south with Macroom to the north. The quarry within the landholding is worked out for a substantial part of its southern end. There are office/administration buildings, staff/visitor car parking and aggregate storage within this area and at the eastern end of this southern section there is a tarmacadam / asphalt plant and a large storage building. There are a network of internal roads throughout the holding. Lands to the south of the main access road at the southern extremity of the holding remain in mixed woodland while there are extensive areas beyond the worked out sections of the quarry that appear to remain undisturbed. There is extensive lands to the north and north-east of the southern worked out section that are covered in dense scrub. There is an existing watercourse that runs along the eastern and southern boundaries of the landholding that flows to the Bandon River a short distance to the west of the regional road.

Planning History

It is understood that the quarry was previously a Council quarry established prior to 1964. This quarry was not registered pursuant to section 261 of the Planning and Development Act.

Section 261A

The planning authority determined in August 2012 that development had been carried out since 1st February 1990 which was considered would have required EIA and since 26th February 1997 which would have required AA and that neither had been carried out. It was also determined that the quarry had not been registered under section 261 before the deadline of April 2005 and it was concluded that the quarry was unauthorised development.

In November 2013 an enforcement notice was issued by the planning authority seeking the cessation of quarrying. In October 2014 the Council wrote to the quarry operator informing them that the notice had been complied with. ABP Ref. PL 88.245174 (P.A. 14/.616) Permission was granted by the Board for the quarrying of stone with an extraction area of 6 hectares.

A subsequent Judicial Review (2016 No. 499 JR) quashed this decision. ABP-302158-18 An application for leave to apply for substitute consent for the quarry was refused by the Board in July 2018.

It was determined that the provisions of section 177C of the Act could not apply to the site the subject of ABP Ref. PL 88.245174 because such permission was for future quarrying development, because the area in the application did not include all of the former quarry that is unauthorised and includes areas of lands that have not been developed that the Board is not in a position to assess whether exceptional circumstances apply.

General Scoping Introduction

The following documents should be taken into consideration when preparing the Environmental Impact Assessment Report:

- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment

https://www.housing.gov.ie/sites/default/files/publications/files/guidelines_for_planning_authoriti es_and_an_bord_pleanála_on_carrying_out_eia_-_august_2018.pdf

- EU publication: Environmental Impact Assessment of Projects Guidance on the preparation of the Environmental Impact Assessment Report, EU, 2017

  http://ec.europa.eu/environment/eia/pdf/EIA_guidance_EIA_report_final.pdf
- Adoption of the Directive (2014/52/EU) in April 2014 initiated a review of the National Guidance for EIA and the EIAR accompanying a planning application.

- New guidelines can be seen at:

https://www.epa.ie/publications/monitoring--assessment/assessment/guidelines-on-theinformation-to-be-contained-in-environmental-impact-assessment.php

The introduction of the new Guidance is supported by a Webinar produced by the EPA and can be found at:

https://www.youtube.com/embed/ejKVFUztxBY

Generally the Environmental Impact Assessment should examine all likely significant impacts and provide the following information for each:

a) Description of the receiving environment
b) The nature and scale of the impact
c) An assessment of the significance of the impact
d) Proposed mitigation measures
e) Residual impacts

Directive 2014/52/EU has an enhanced requirement to assess likely significant impacts on Population and Human Health. It is the experience of the National Environmental Health Service (NEHS) that impacts on human health are often inadequately assessed in EIAs in Ireland. It is recommended that the wider determinants of health and wellbeing are considered in a proportionate manner when considering the EIA. Guidance on wider determinants of health can be found at www.publichealth.ie

In addition to any likely significant negative impacts from the proposed development, any positive likely significant impacts should also be assessed.

An application for substitute consent would allow for the effects on the environment to be remediated and the existing environment improved if carried out in full. The application, accompanied by a remedial EIAR and AA, should give the opportunity to have the full environmental effects between 1990 and 2014 assessed, remediated and improved.

As this is **an existing quarry**, a review should be undertaken of compliance with any current planning conditions and any complaints received and any action taken to resolve complaints. Particularly around noise and dust emissions and use of the local road network as part of the activities of the existing quarry. Because this is an application for the operation of an existing development the predictive methodology routinely employed in EIA can be supported by actual data of operation of the existing quarry. Therefore, any assessment of likely significant impacts from the continued use should be supported by data of actual impacts during the operation phase of the current development.

This assessment should include the effectiveness of any existing mitigation measures and identify where mitigation should be continued and/or reviewed. The public consultation should include consultation on how the existing quarry might or might not be impacting on local communities.

The HSE will consider the final rEIAR accompanying the planning application and will make comments to An Bord Pleanála/Local Planning Authority on the methodology used for assessing the likely significant impacts and the evaluation criteria used in assessing the significance of the impact.

The National Environmental Health Service (NEHS) recommends that the following matters are included and assessed in the rEIAR:

- Public Consultation
- Population and Human Health
- Water (Hydrology and Hydrogeology)
- Land and Soils

• Air, Dust and Odour
• Climate Change and Opportunity for Health Gain
• Noise and Vibration
• Waste Management
• Ancillary Facilities
• Cumulative Impacts

Public Consultation

The applicant should consider the appointment of a community liaison officer. Early and meaningful public consultation with the local community should be carried out to ensure all potentially significant impacts have been adequately addressed. All parties affected by the proposed development, including those who may benefit financially from the project, must be fully informed of what the proposal entails especially with regard to potential impacts on surrounding areas. Sensitive receptors and other stake-holders should be identified to ensure all necessary and appropriate mitigation measures are put in place to avoid any complaints about the proposed quarry development in the future. With the lifting of restrictions around public gatherings as a result of Covid 19 prevention measures there should be no barrier to holding public consultation events albeit within current government guidance at the time. Meaningful public consultation, where the local community is fully informed of the proposed development must be undertaken. Members of the public should be given sufficient opportunities to express their views on the proposed development.

The Environmental Impact Assessment Report (rEIAR) should clearly demonstrate the link between public consultations and how those consultations have influenced the decision-making process in the EIA. The rEIAR should state the period of planning permission sought, the length of time construction estimated, and if it is anticipated that the development will be decommissioned or will continue to operate (following any further planning consent) at the end of this period of planning permission (should permission be granted).

Decommissioning /site restoration

The submission of a Site Restoration Plan, which includes a timeframe for undertaking restoration works, and actual works detail is included as a condition of planning permission, if granted.
To minimise the risk of future water safety issues, consideration be given to an alternative restoration plan for the quarry void involving filling the void and restoring it to agricultural use or as a public amenity.

Assessment of Consideration of Alternatives

The rEIAR should consider an assessment of alternatives should be assessed as part of the rEIAR.

Noise & Vibration

The potential impacts for noise and vibration from the proposed development on all noise sensitive locations must be clearly identified in the rEIAR. The rEIAR must also consider the appropriateness and effectiveness of all proposed mitigation measures to minimise noise and vibration. A baseline noise monitoring survey should be undertaken to establish the existing background noise levels. Noise from any existing industry /quarries or any potential sources in the area should not be included as part of the back ground levels.

Air Quality

Due to the nature of the construction works, generation of airborne dust has the potential to have significant impacts on sensitive receptors. A **Construction Environmental Management Plan** (CEMP) should be included in the rEIAR which details dust control and mitigation measures.

Measures should include:

• Sweeping of hard road surfaces
• Provision of a water bowser on site, regular spraying of haul roads
• Wheel washing facilities at site exit
• Restrict speed on site
• Provide covers to all delivery trucks to minimise dust generation
• Inspect and clean public roads in the vicinity if necessary
• Material stockpiling provided with adequate protection from the wind
• Dust monitoring at the site boundary
• Truck inspection and maintenance plan
• Details of a road maintenance agreement between the operator and the Local Roads Authority to clarify responsibility for the upkeep and repair of access roads during the construction phase of the project .

Surface and Ground Water Quality

The proposed development has the potential to have a significant impact on the quality of both surface and ground water.
All drinking water sources, both surface and ground water, must be identified. Public and Group Water Scheme sources and supplies should be identified in addition to any private wells supplying potable water to houses in the vicinity of the

proposed development. Measures to ensure that all sources and supplies are protected should be described.

The National Environmental Health Service recommends that a walk-over survey of the site is undertaken in addition to a desktop analysis of Geological Survey of Ireland data in order to identify the location of private wells used for drinking water purposes. Any potential significant impacts to drinking water sources should be assessed. Details of bedrock, overburden, vulnerability, groundwater flows, aquifers and catchment areas should be considered when assessing potential impacts and any proposed mitigation measures. Any impacts on surface water as a result of the construction of the underground cables should be identified and addressed in the rEIAR.

Ancillary Facilities

The rEIAR should include details of the location of all site office, construction compound, fuel storage depot, sanitary accommodation and canteen, wheel washing/ vehicle washing, First Aid facilities, disposal of wastewater and the provision of a potable water supply to the site canteen.

Cumulative Impacts

All existing or proposed Quarries/ industry or developments/housing in the vicinity should be clearly identified in the rEIAR. The impact on sensitive receptors of the proposed development combined with any other developments in the vicinity should be considered. The rEIAR should include a detailed assessment of any likely significant cumulative impacts of the new proposed Quarry application.

Eve Smith
Oifigeach Sláinte Comhshaoil | Environmental Health Officer
Environment/Climate Change, Network Support Unit (NSU)

*** All correspondence or any queries with regard to this report including acknowledgement of this report should be forwarded to : Eve Smith ,Environmental Health Officer, Environmental Health Service, Dungloe Community Hospital, Letterkenny Co. Donegal. F94 Y326**

Murray Brothers Tarmacadam Ltd

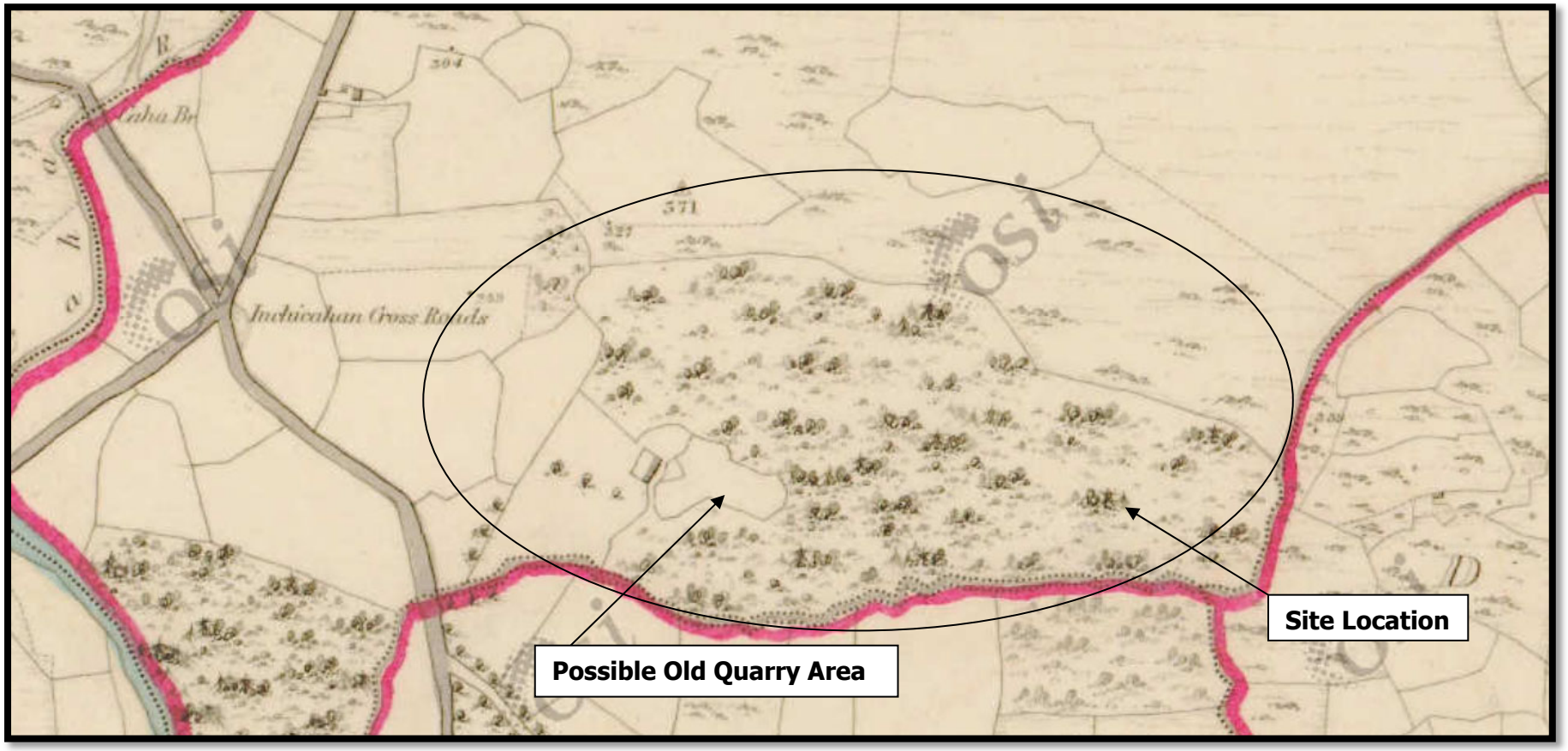
APPENDIX 6.1
TAILTE ÉIREANN HISTORIC MAPPING

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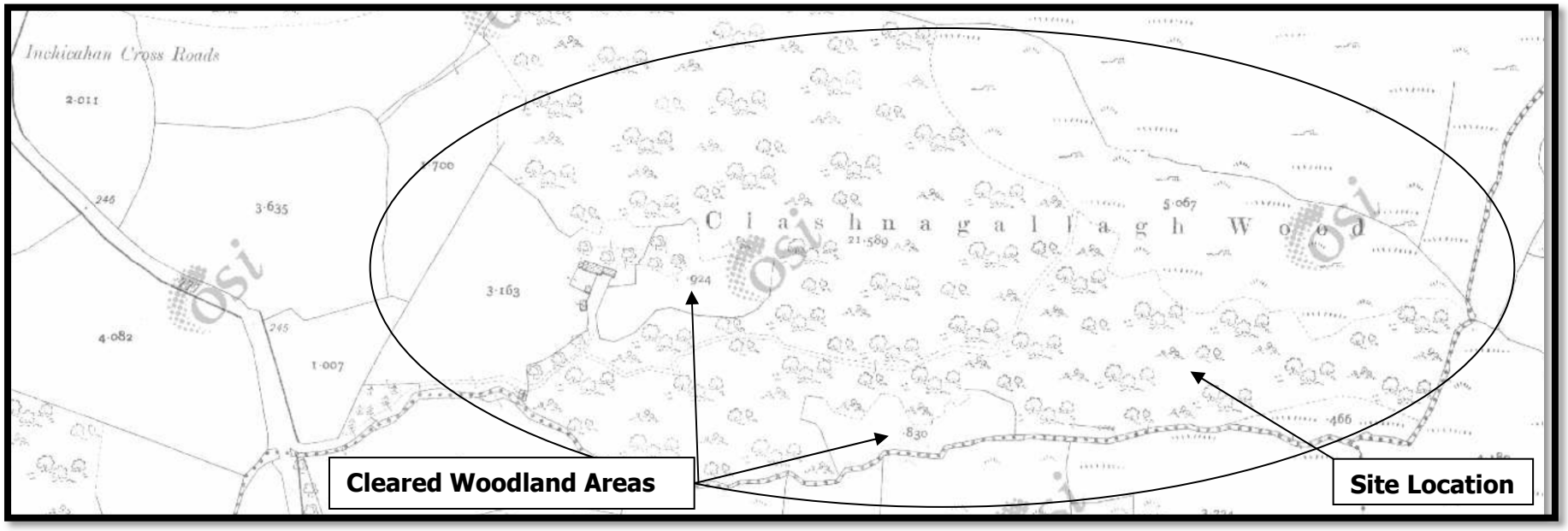
Ardcahan Quarry rEIAR – Chapter 6 Land Use, Soils (Geology)

Appendix 6.1 – Tailte Eireann Historic Mapping



Appendix 6.1.1 – Tailte Eireann 1840's Six Inch Mapping – approximate site location and study area shown in circle.

Reproduced under Viridus Consulting Ltd., Tailte Eireann Copyright Licence: CYAL50458194 © Tailte Eireann/Government of Ireland



Appendix 6.1.2 – Tailte Eireann early 1900's 25" Inch Mapping.

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Murray Brothers Tarmacadam Ltd

APPENDIX 6.2

GSI AND TEAGASC SOIL MAPPING

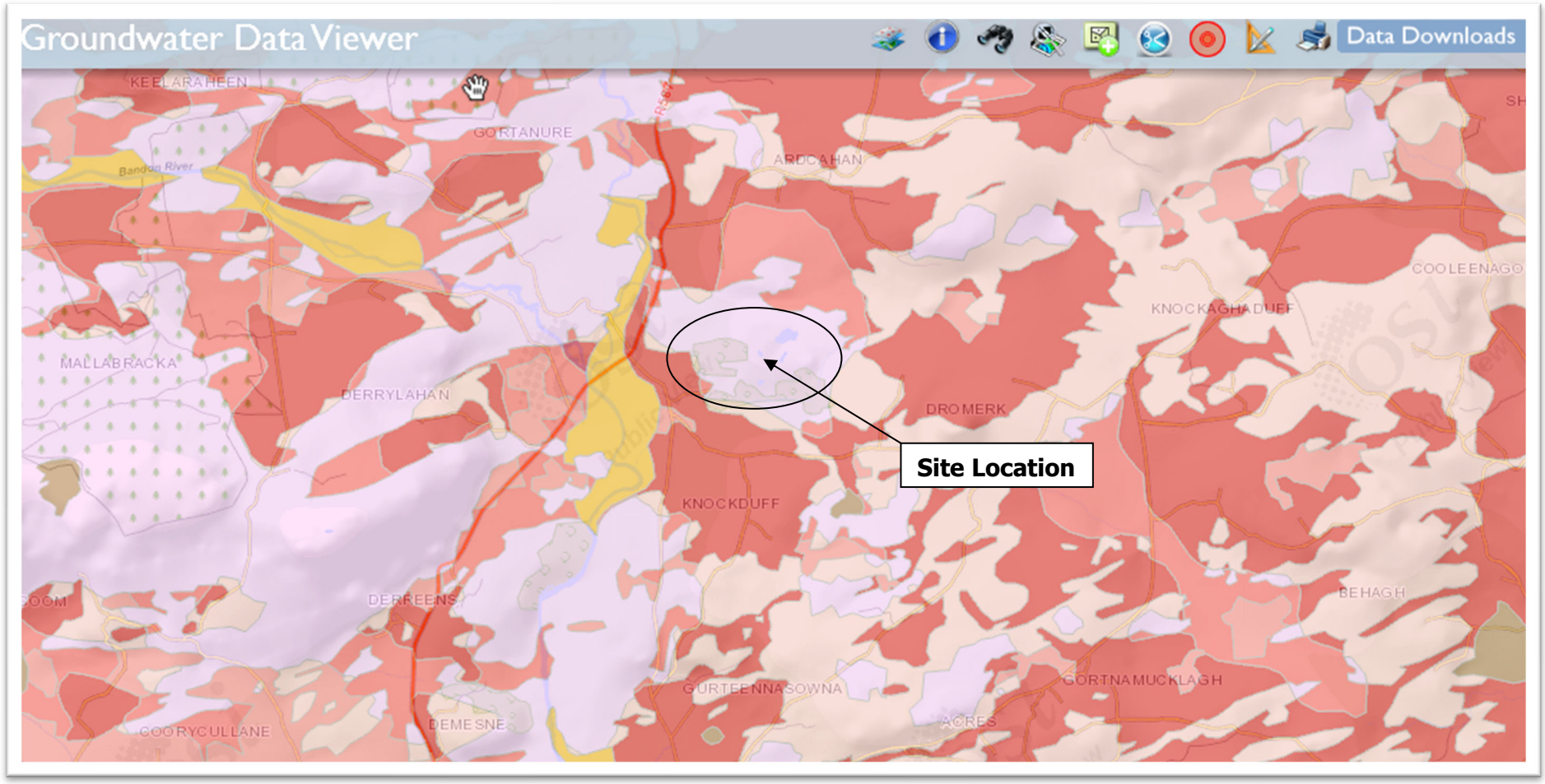
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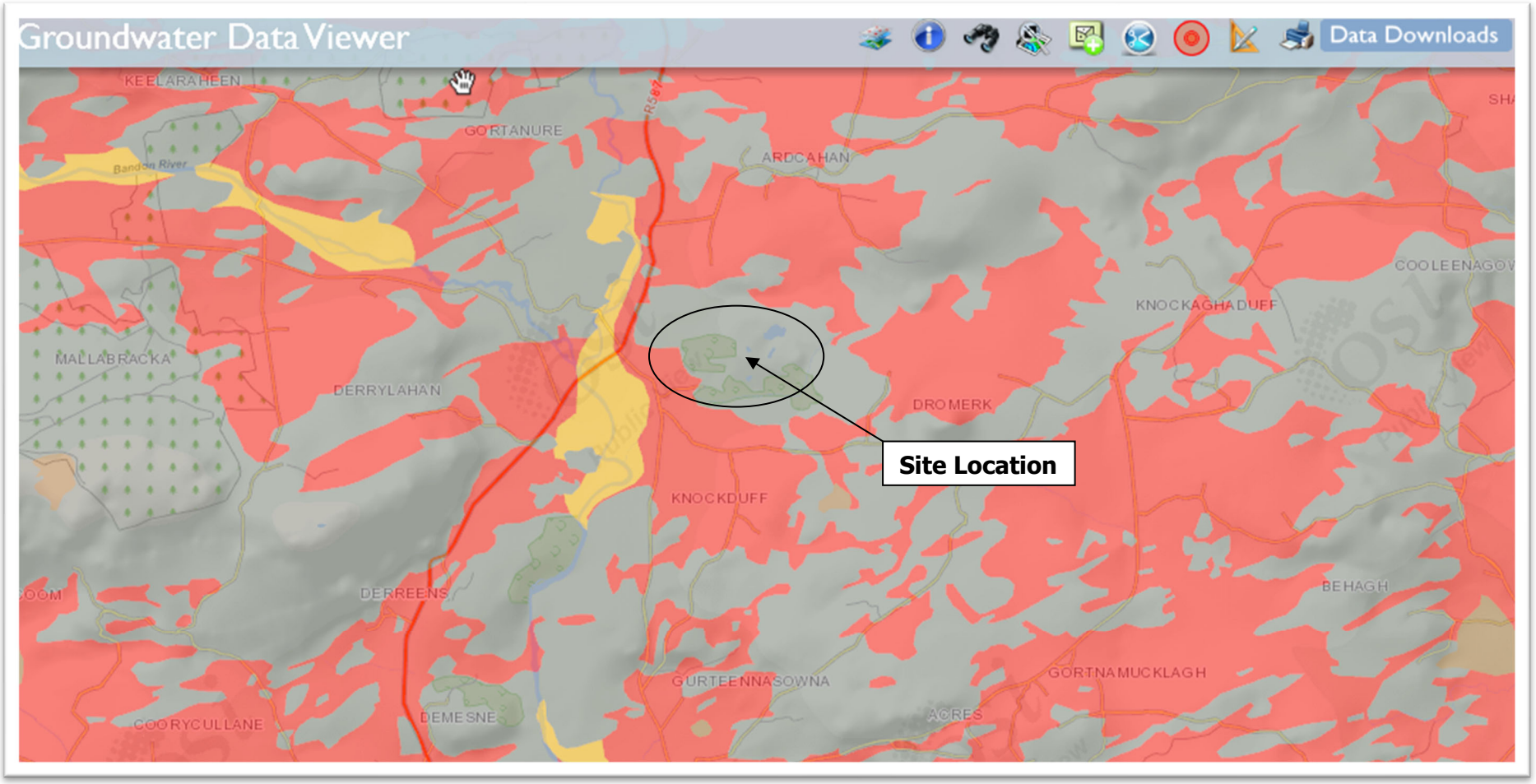
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Ardcahan Quarry rEIAR – Chapter 6 Land Use, Soils (Geology)

Appendix 6.2 – GSI and Teagasc Soil Mapping



Appendix 6.2.1: GSI Regional Topsoil Map showing site area with 'shallow soils of non-calcareous rocks'. (www.gsi.ie).



Appendix 6.2.2 – GSI Subsoil Map showing site as underlain by 'bedrock' - (source www.GSI.ie).



Appendix 6.2.3 – Teagasc/Cranfield Soil Map with rock (light grey) & peaty soil (dark grey) in the site area with Carbury Soil Association (light green) to Southwest and south of site. (Approx site location shown by red cross). Source www.GSI.ie.

REPRESENTATIVE PROFILE DESCRIPTION

SERIES: ROSS CARBERY

Reference profile: RPW39BR01
County: Cork
Weather: Overcast
Elevation: 38

TOPOGRAPHY
Position: Lower slope
Slope degree: 11
Slope Form: Concave
Aspect: SE

PARENT MATERIAL
Substrate Type: Drift
Substrate Subgroup: Siliceous stones

TEXTURAL CRITERIA
Textural Class: Coarse loamy
Texturally contrasting:

LAND USE
Land use: Grassland improved
Human technologies: Fertilizer applications, Slurry applications, Seeded/reseeded
Vegetation: Grassland, Grassland
Species: Bramble/Briars

WATER TABLE None

ROCK OUTCROPS None

SURFACE STONE None

IRISH CLASSIFICATION (2013)
Soil subgroup: 09.0.0 Typical Brown Podzolic

National Soil Series: Ross Carbery
Coarse loamy compact drift with siliceous stones

DESCRIPTION

0 - 35 cm **Ap**

MATRIX COLOR: 10YR33. **STONES (%):** Few, 2-6 mm, Angular, Siliceous stones; Few, 2-6 cm, Angular, Siliceous stones. **TEXTURE:** Sandy loam. **STRUCTURE:** Weak, Crumb, Fine. **CONSISTENCY:** Very friable. **PLASTICITY:** Non-plastic. **STICKINESS:** Non-sticky. **ROOTS:** Many, Medium. **PACKING DENSITY:** Very Low **POROSITY:** Very High. **MACROPORES:** Medium. **BOUNDARY:** Clear, Smooth.

35 - 70 cm **AB**

MATRIX COLOR: 10YR43. **STONES (%):** Common, 2-6 mm, Angular, Shale; Common, 2-6 cm, Angular, Shale. **TEXTURE:** Coarse, Sandy loam. **STRUCTURE:** Moderate, Sub-angular blocky, Fine to Medium. **CONSISTENCY:** Friable. **PLASTICITY:** Non-plastic. **STICKINESS:** Non-sticky. **ROOTS:** Common, Fine. **PACKING DENSITY:** Medium. **POROSITY:** High. **MACROPORES:** Fine. **BOUNDARY:** Abrupt, Wavy.

70 - 100 cm **Bs buried**

MATRIX COLOR: 75YR46. **STONES (%):** Common, 2-6 mm, Angular, Shale; Common, 2-6 cm, Angular, Shale. **TEXTURE:** Sandy Loam. **STRUCTURE:** Weak, Sub-angular blocky, Fine. **CONSISTENCY:** Very friable. **PLASTICITY:** Non-plastic. **STICKINESS:** Non-sticky. **ROOTS:** Few, Fine. **COATS:** Clay, Few, Faint, Discontinuous. **PACKING DENSITY:** Medium. **POROSITY:** High. **MACROPORES:** Fine. **BOUNDARY:** Clear, Wavy.

100 - 150 cm **2C buried**

MATRIX COLOR: 25Y62. **VARIEGATION:** 75YR46, Few, Fine, Distinct, Sharp. **STONES (%):** Many, 2-6 mm, Angular, Shale; Many, 2-6 cm, Angular, Shale. **TEXTURE:** Sandy Loam. **STRUCTURE:** Massive. **COMPACITY:** Non-cemented but compacted. **CONSISTENCY:** Firm. **PLASTICITY:** Non-plastic. **STICKINESS:** Non-sticky. **ROOTS:** Very few, Fine. **PACKING DENSITY:** High. **POROSITY:** Low. **MACROPORES:** Fine.

DRAFT



LABORATORY ANALYSIS

Horizon	pH	Total (%)		Organic Carbon (%)	Loss-on-ignition (%)
		Nitrogen	Carbon		
1 (Ap)	8.3	0.31	4.26	2.78	
2 (AB)	8.5	0.12	2.62	0.94	
3 (Bs buried)	8.2	0.07	1.19	0.48	
4 (2C buried)	8.5	0.01	0.24	0.16	

OXALATE EXTRACTABLE		EXCHANGEABLE COMPLEX					
Fe ($g\ kg^{-1}$)	Al ($g\ kg^{-1}$)	CEC ($cmol\ kg^{-1}$)	Exchangeable Bases ($cmol\ kg^{-1}$)				Base Saturation (%)
			Na^+	K^+	Mg^{2+}	Ca^{2+}	
2.98	0.73	20.60	0.5	8.97	1.18	19.40	Sat.
4.47	0.83	12.20	0.35	5.00	0.39	11.9	Sat.
11.35	3.01	13.1	0.51	0.02	0.23	13.20	Sat.
0.93	0.73	1.82	0.26	0.14	0.209	2.27	Sat.

PARTICLE SIZE (%)			Textural Class USDA	Bulk Density g/cm^3	Standard Deviation
Sand 2000-50 µm	Silt 50-2 µm	Clay <2 µm			
64	18	18	Sandy Loam	1.19	0.11
62	23	15	Sandy Loam	0.97	0.06
54	35	11	Sandy Loam		
57	37	6	Sandy Loam		

DRAFT

SERIES: ROSS CARBERY (0900RO) - REPRESENTATIVE PROFILE DESCRIPTION - **PDF version available**

Reference profile: RPW39BR01
Weather: Overcast

TOPOGRAPHY
Position: Lower slope
Form: Concave
Aspect: SE

PARENT MATERIAL
Substrate type: Drift
Substrate subgroup: Siliceous stones

TEXTURAL CRITERIA
Texture 1: Coarse loamy
Texture 2: -

LAND USE
Land use: Grassland improved
Human technologies: Fertilizer applications

ROCK OUTCROPS None (0 %)

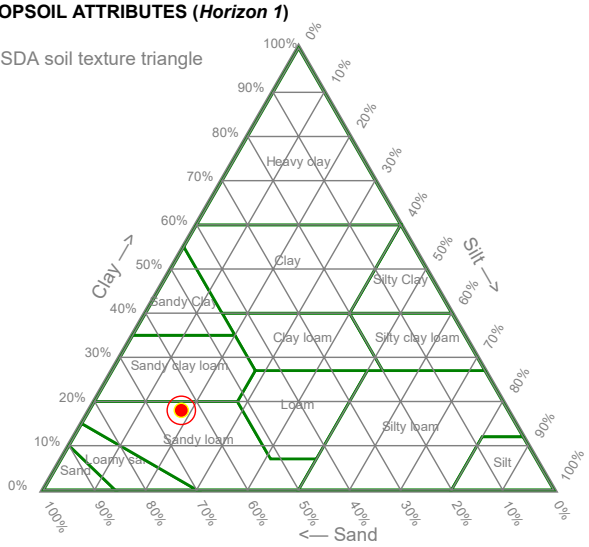
SURFACE STONE None (0 %)

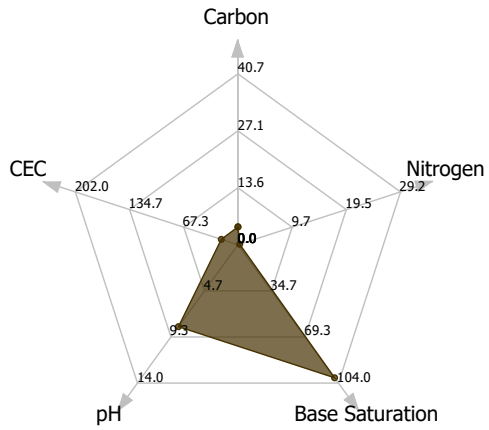
IRISH CLASSIFICATION (2013)
Soil subgroup: 900 Typical Brown Podzolics
National Soil Series: Ross Carbery
Definition: Coarse loamy compact drift with siliceous stones

Download a PDF version of this profile description here

TOPSOIL ATTRIBUTES (*Horizon 1*)

USDA soil texture triangle





Horizon 1: 0 - 35 cm

Humose: No
Matrix colour (moist): 10YR33
Texture: Sandy

Stones (% total): Few (2-5 %)
Stones details: Fine gravels (2-6 mm)
Stickiness: Non-sticky

HCL reaction: No reaction
Packing density: Very Low
Plasticity: Non-plastic

TOTAL %
Nitrogen: 0.31
Carbon: 4.26
Organic carbon: 2.78
Loss on ignition: -

PARTICLE SIZE %
Sand: 64%
Silt: 18%
Clay: 18%

Textural Class (USDA): Sandy Loam
Bulk density: -
pH: 8.29

EXCHANGEABLE COMPLEX
Exchangeable Bases (cmol kg^{-1})
Na: 0.51
K: 0.09
Mg: 1.20
Ca: 19.48

CEC (cmol kg^{-1}): 20.69
Base saturation: 100%

Horizon 2: 35 - 70 cm

Humose: No
Matrix colour (moist): 10YR43
Texture: Coarse loamy

Stones (% total): Common (5-15 %)
Stones details: Fine gravels (2-6 mm)
Stickiness: Non-sticky

HCL reaction: No reaction
Packing density: Medium
Plasticity: Non-plastic

TOTAL %
Nitrogen: 0.12
Carbon: 2.62
Organic carbon: 0.94
Loss on ignition: -

PARTICLE SIZE %
Sand: 62%
Silt: 23%
Clay: 15%

Textural Class (USDA): Sandy Loam
Bulk density: -
pH: 8.46

EXCHANGEABLE COMPLEX
Exchangeable Bases (cmol kg^{-1})
Na: 0.36
K: 0.05
Mg: 0.40
Ca: 11.99

CEC (cmol kg^{-1}): 12.23
Base saturation: 100%

Horizon 3: 70 - 100 cm

Humose: No
Matrix colour (moist): 75YR46
Texture: Coarse loamy

Stones (% total): Common (5-15 %)
Stones details: Fine gravels (2-6 mm)
Stickiness: Non-sticky

HCL reaction: No reaction
Packing density: Medium
Plasticity: Non-plastic

TOTAL %
Nitrogen: 0.07
Carbon: 1.19
Organic carbon: 0.48
Loss on ignition: -

PARTICLE SIZE %
Sand: 54%
Silt: 35%
Clay: 11%

Textural Class (USDA): Sandy Loam
Bulk density: -
pH: 8.21

EXCHANGEABLE COMPLEX
Exchangeable Bases (cmol kg^{-1})
Na: 0.51
K: 0.03
Mg: 0.23
Ca: 13.25

CEC (cmol kg^{-1}): 13.12
Base saturation: 100%

Horizon 4: 100 - 150 cm

Humose: No
Matrix colour (moist): 25Y62
Texture: Fine loamy

Stones (% total): Many (15-40 %)
Stones details: Fine gravels (2-6 mm)
Stickiness: Non-sticky

HCL reaction: No reaction
Packing density: High
Plasticity: Non-plastic

TOTAL %
Nitrogen: 0.01
Carbon: 0.24
Organic carbon: 0.16
Loss on ignition: -

PARTICLE SIZE %
Sand: 57%
Silt: 37%
Clay: 6%

Textural Class (USDA): Sandy Loam
Bulk density: -
pH: 8.45

EXCHANGEABLE COMPLEX
Exchangeable Bases (cmol kg^{-1})
Na: 0.27
K: 0.15
Mg: 0.21
Ca: 2.28

CEC (cmol kg^{-1}): 1.82
Base saturation: 100%

Murray Brothers Tarmacadam Ltd

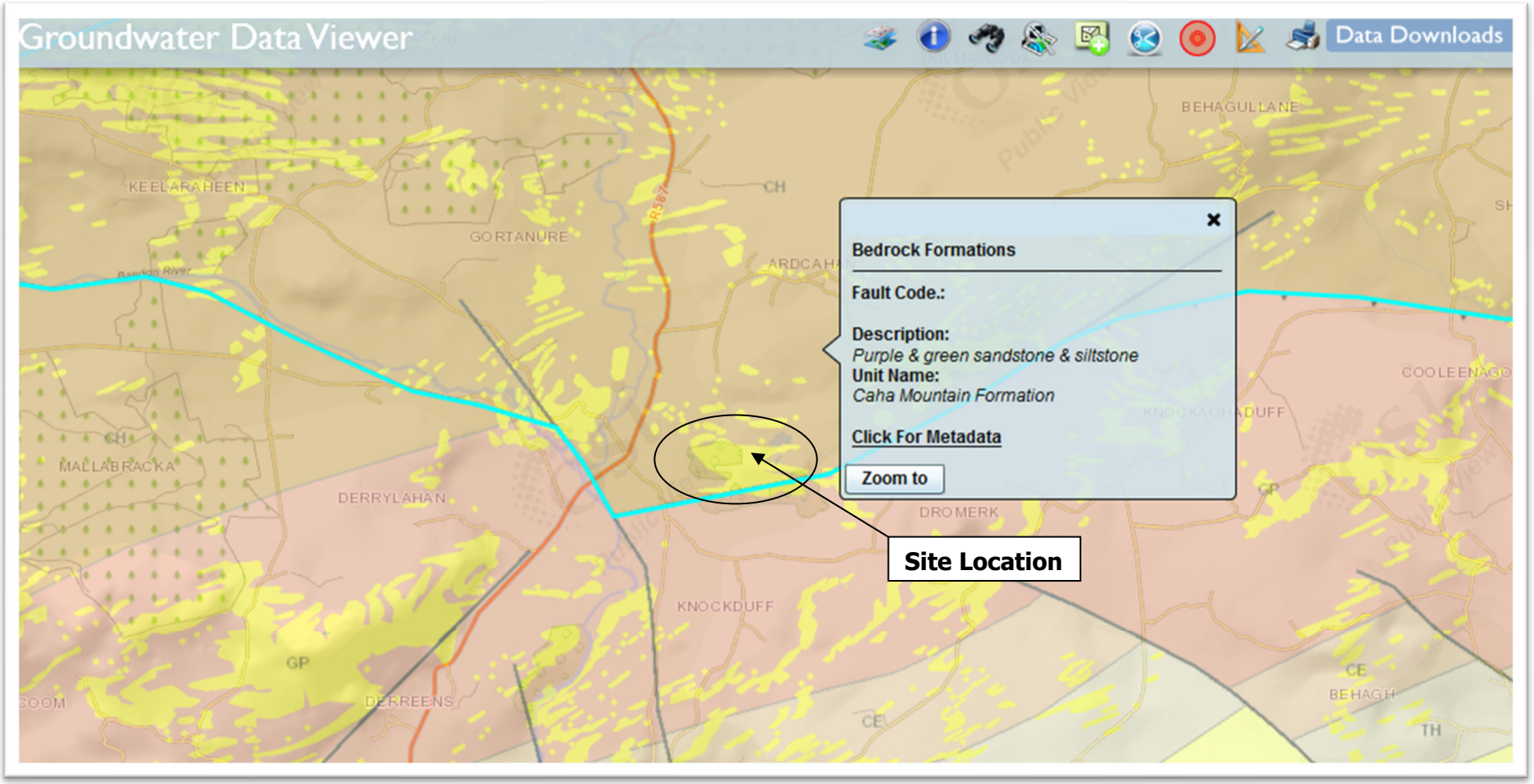
APPENDIX 6.3
GSI BEDROCK AND SOIL STABILITY MAPS & OLD DRILLING LOGS AND LAB TEST REPORTS

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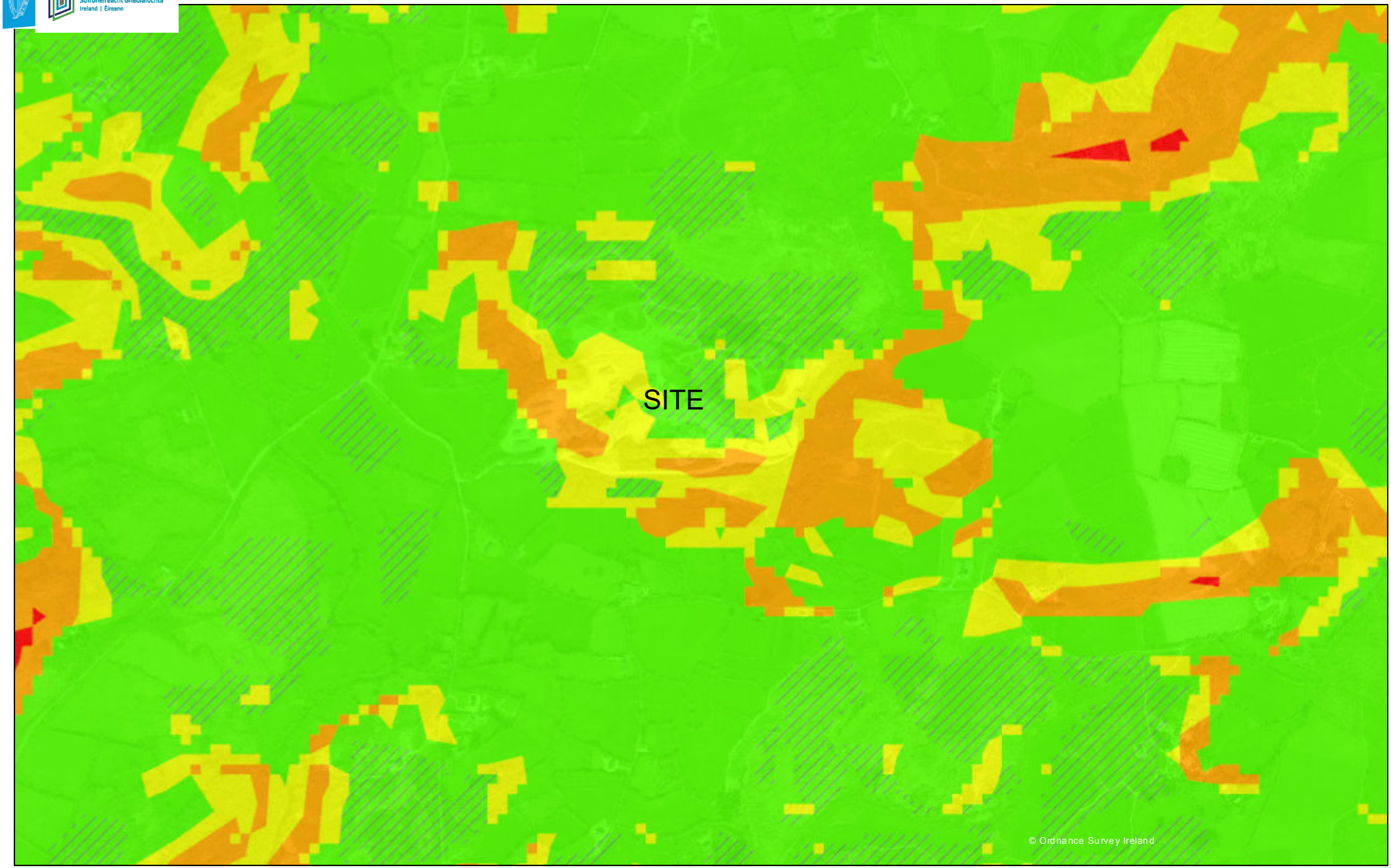
Ardcahan Quarry rEIAR – Chapter 6 Land Use, Soils (Geology)

Appendix 6.3 – GSI Bedrock & Slope Stability Maps & Old Drilling Logs and Lab Test Reports



Appendix 6.3.1: Regional Bedrock Map indicating the whole quarry area is underlain by the Caha Mountain Formation (CH) comprising Purple & Green Sandstone & Siltstone. (source www.gsi.ie). The Gunpoint Formation (GP) occurs to the South.

Appendix 6.3.2 GSI Ardcahan Quarry Area Landslide Susceptibility Mapping



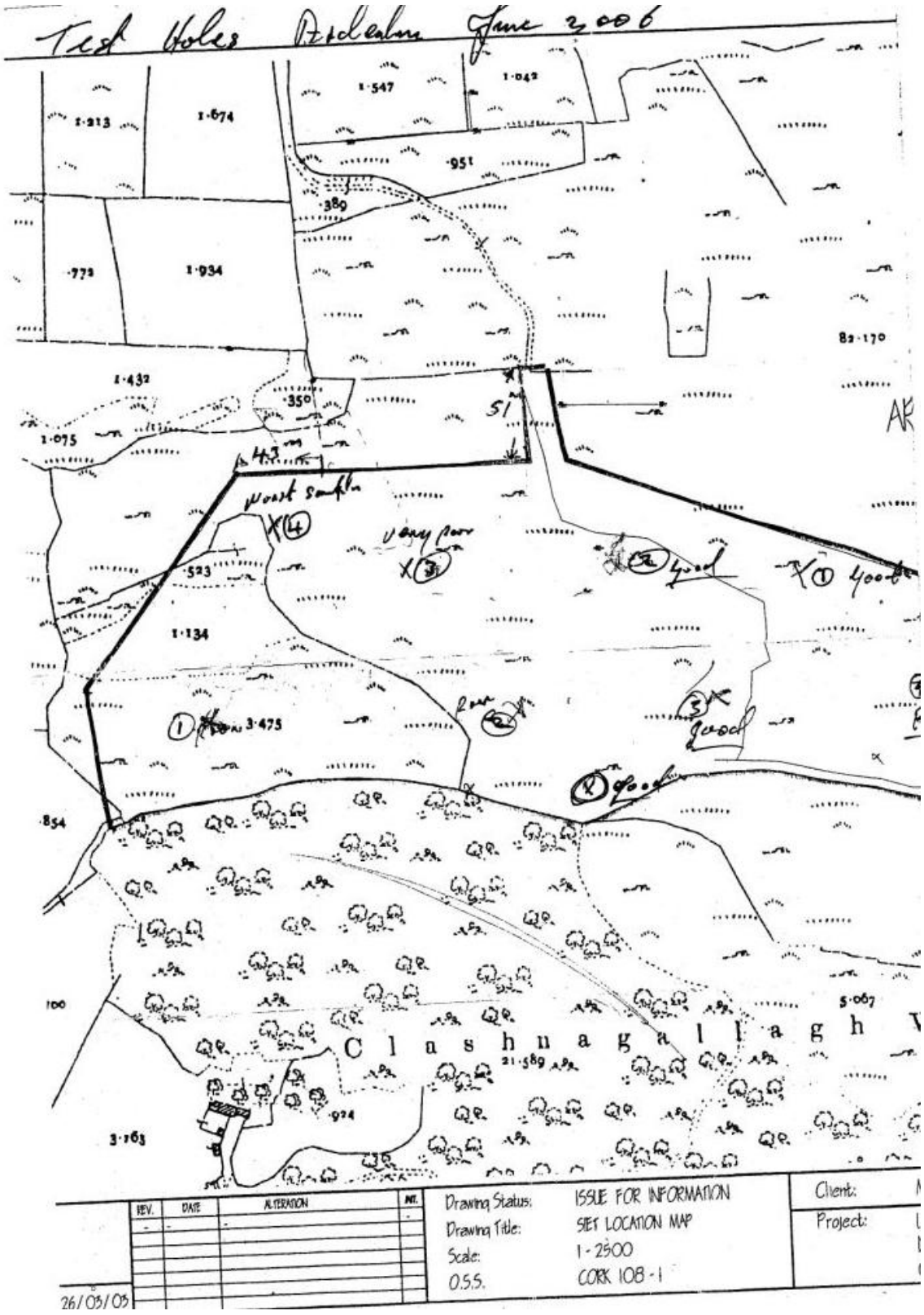
Geological Survey Ireland
CC-BY 4.0

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© Ordnance Survey Ireland/Government of Ireland
© Geological Survey Ireland/Government of Ireland

0 0.05 0.1 0.2 mi
0 0.1 0.2 0.4 km

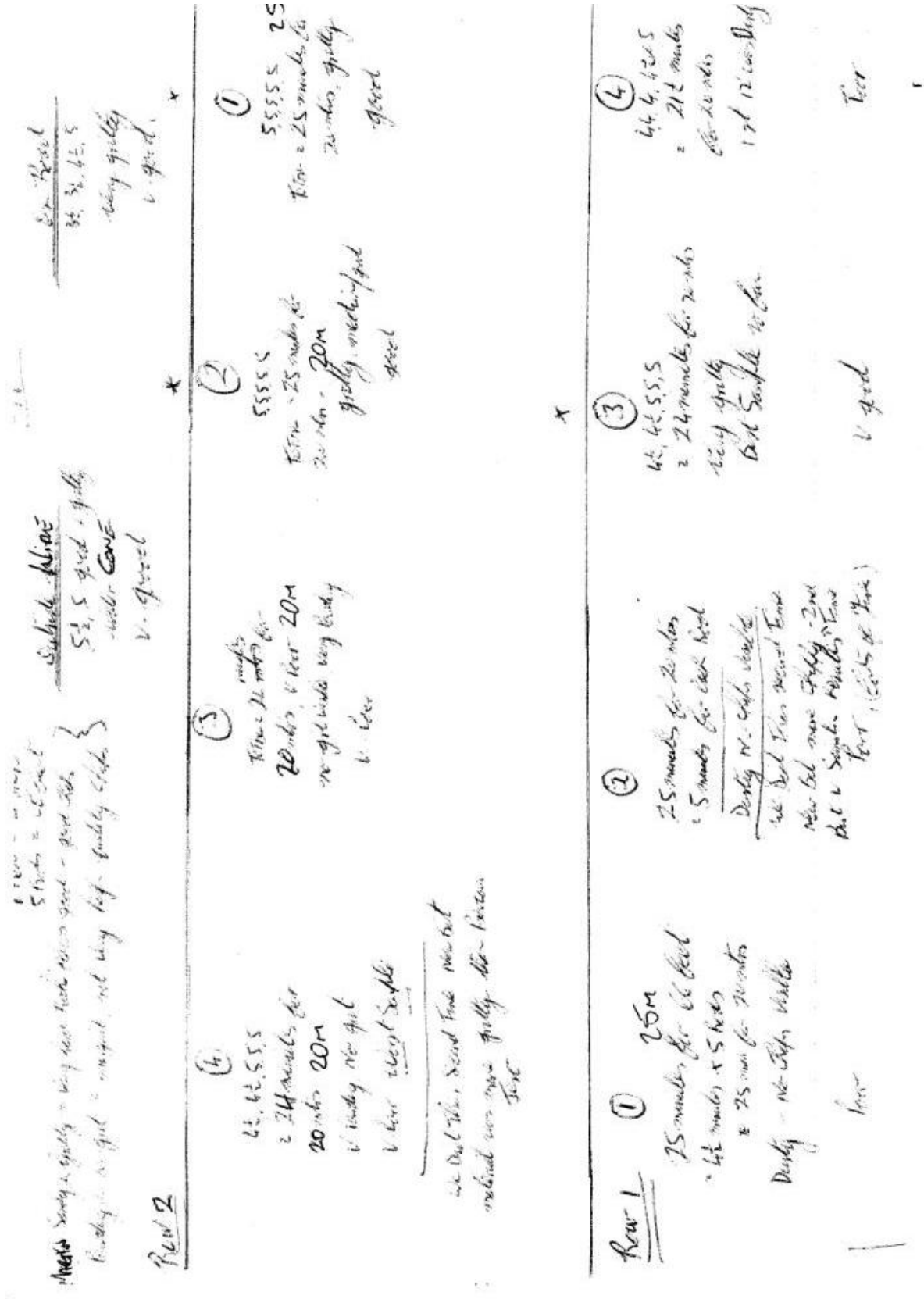
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Appendix 6.3.3 – Ardcahan rEIAR – Land Use/Soils (Geology)
Ardcahan Quarry - North Site Area Drilling Data 2003



Appendix 6.3.3 – Old Driller Notes 2003 – Test Hole Drilling Locations Map.

Appendix 6.3.3 – Ardcahan rEIAR – Land Use/Soils (Geology)
Ardcahan Quarry - North Site Area Drilling Data 2003



Appendix 6.3.3 – Driller Notes from Test Holes drilled in 2003. Rate, depth and type of grit return recorded. Note no groundwater was reportedly encountered.

Appendix 6.3d – Ardcahan rEIAR – Land Use Soils/Geology
Ardcahan Quarry - Polished Stone Value Laboratory Results.

Stanger Testing Services (Ireland) Ltd
Edgeworthstown Business Park
Edgeworthstown, Co. Longford
Tel : 043 667 2070 Email : contact@stanger.ie

Stanger

0251
Group

Your Ref :
Our Ref : E13046
Date : 06 May 2014
Job No. : J0000479

Certificate of Test for Polished Stone Value on a Sample of Aggregate to BS EN 1097 - 8 : 2009

Client	:	Murray Bros Tarmacadam Ltd
Contract	:	Dunmanway Quarry
Supplier / Source	:	Murray Bros Tarmacadam Ltd Dunmanway Quarry
Sample Location	:	Quarry Production
Method of Sampling	:	BS EN 932 : 1 1997
Sample Description	:	10mm Chips
Date Sampled	:	12/03/2014
Date Received	:	13/03/2014
Our Sample Ref.	:	E13046
Date Test Completed	:	02 May 2014
Declared Control Stone Value	:	49.0

Test Result

Specimen No.	Run No.	Control Stone	Specimen
1	1	47.3	61.3
2	1	47.3	60.7
3	2	48.3	60.0
4	2	49.0	60.3
Mean Value :	:	48.0	60.6

Laboratory Determined P.S.V : : **62**

Remarks :

a The test results only relate to the sample tested
b We confirm that in preparing this report we have exercised all reasonable skill and care
c Please be advised that all samples (if not destroyed in the testing process) will be disposed of 7 days from the date of issue of this report unless we received written instruction to retain them, in which case charges may apply.
Comparative Sample in accordance with NRA IAN 05/13 - Sample Tested by Stanger Testing Services, Glasgow

Signed : D. Jordan **Date :** 06 May 2014
for Stanger Testing Services (Ireland) Ltd

Authorised signatories :

☑ D. Jordan - Contracts Manager ☐ D. Djackovs - Technician

Appendix 6.3d – PSV Results from Ardcahan Quarry Rock Aggregate Testing.

Appendix 6.3d – Ardcahan rEIAR – Land Use Soils/Geology
Ardcahan Quarry - Polished Stone Value Laboratory Results.

Stanger Testing Services (Ireland) Ltd
Edgeworthstown Business Park
Edgeworthstown, Co. Longford
Tel : 043 667 2070 Email : contact@stanger.ie

Stanger

Your Ref :
Our Ref : E13045
Date : 13 May 2014
Job No. : J0000479

UKAS TESTING 0251 Group

Certificate of Test for Polished Stone Value on a Sample of Aggregate to BS EN 1097 - 8 : 2009

Client	:	Murray Bros Tarmacadam Ltd
Contract	:	Dunmanway Quarry
Supplier / Source	:	Murray Bros Tarmacadam Ltd Dunmanway Quarry
Sample Location	:	Quarry Production
Method of Sampling	:	BS EN 932 : 1 1997
Sample Description	:	10mm Chips
Date Sampled	:	12/03/2014
Date Received	:	13/03/2014
Our Sample Ref.	:	E13045
Date Test Completed	:	13 May 2014
Declared Control Stone Value	:	49.0

Test Result

Specimen No.	Run No.	Control Stone	Specimen
1	1	47.3	61.0
2	1	48.0	60.0
3	2	47.6	60.3
4	2	48.0	59.6
Mean Value :		47.7	60.2

Laboratory Determined P.S.V : : **62**

Remarks :

a The test results only relate to the sample tested
b We confirm that in preparing this report we have exercised all reasonable skill and care
c Please be advised that all samples (if not destroyed in the testing process) will be disposed of 7 days from the date of issue of this report unless we received written instruction to retain them, in which case charges may apply.

0

Signed : D. Jordan
for Stanger Testing Services (Ireland) Ltd

Date : 13 May 2014

Authorised signatories :

☑ D. Jordan - Contracts Manager ☐ D. Djackovs - Technician

Appendix 6.3d – PSV Results from Ardcahan Quarry Rock Aggregate Testing.

Appendix 6.3d – Ardcahan rEIAR – Land Use Soils/Geology
Ardcahan Quarry - Polished Stone Value Laboratory Results.

testconsult

TESTCONSULT LIMITED
40A Hardwick Grange, Warrington, WA1 4RF
Testconsult Ireland Ltd.
Clonminam Ind. Est., Portlaoise, Co. Laois
Tel.: (057) 8664885 Fax.: (057) 8664380

UKAS TESTING 0955

LABORATORY TEST REPORT

DETERMINATION OF POLISHED STONE VALUE (PSV)
In accordance with BS EN 1097-8 : 2000

Project:	Ardcahan Quarry	**Job No.:**	PL
Client:	Murray Brothers Tarmacadam Ltd.	**Lab Ref No.:**	ST 60018
	Ardcahan Quarry	**Date Received:**	07/03/2014
	Dunmanway	**Date Reported:**	09/04/2014
	Co. Cork	**Material:**	10mm Aggs
Order No:	N/A	**Specification:**	IS EN 13043. IAT Table 3
Originator:	Fred Lavers		

Sample Details **10mm Aggs**

Supplier:	Murray Bros.	**Date of Sampling:**	Client Info.
Source:	Ardcahan Quarry	**Sampled By:**	Client
		In accordance with EN 933	Yes
Location:	Client Info.	**Control Stone Batch No.:**	11051610
Sample Type:	Bulk		

Results

Recorded Polished Stone Value

Test Specimen:	Test Run 1	a	60.7	Mean	
		b	63.7	recorded	
	Test Run 2	c	59.7	value (S) =	60.8
		d	59.0		
Control Stone:	Test Run 1	a	51.3	Mean	
		b	50.3	recorded	
	Test Run 2	c	47.3	value (C) =	48.9
		d	46.7		

Corrected Polished Stone Value: S + 49.0 -C = **61**

Tested in accordance with the above specifications

Approved Signature
TESTCONSULT IRELAND LIMITED

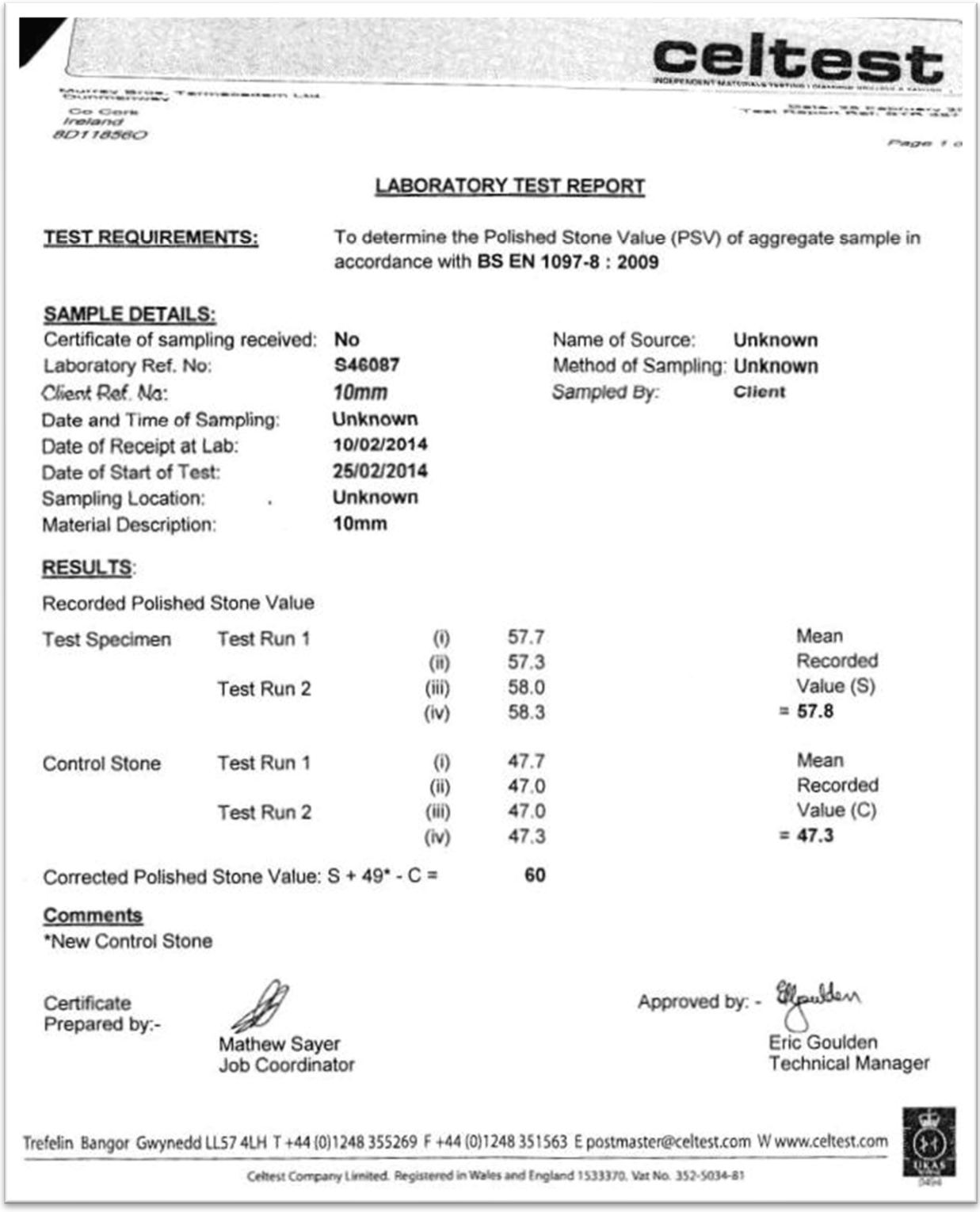
☐ Mark Dawkins, Director; ☑ Michael Robinson, Director & Lab. Manager
☐ James Ward, Senior Technician

Page 1 of 1

MBL ST 60018 10mm aggs

Appendix 6.3d – PSV Results from Ardcahan Quarry Rock Aggregate Testing.

Appendix 6.3d – Ardcahan rEIAR – Land Use Soils/Geology
Ardcahan Quarry - Polished Stone Value Laboratory Results.



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Ireland
8D11856O

Page 1 o

LABORATORY TEST REPORT

TEST REQUIREMENTS: To determine the Polished Stone Value (PSV) of aggregate sample in accordance with **BS EN 1097-8 : 2009**

SAMPLE DETAILS:

Certificate of sampling received:	**No**	Name of Source:	**Unknown**
Laboratory Ref. No:	**S46087**	Method of Sampling:	**Unknown**
Client Ref. No:	***10mm***	*Sampled By:*	***Client***
Date and Time of Sampling:	**Unknown**		
Date of Receipt at Lab:	**10/02/2014**		
Date of Start of Test:	**25/02/2014**		
Sampling Location:	**Unknown**		
Material Description:	**10mm**		

RESULTS:

Recorded Polished Stone Value

Test Specimen	Test Run 1	(i)	57.7	Mean Recorded Value (S)
		(ii)	57.3	
	Test Run 2	(iii)	58.0	
		(iv)	58.3	= **57.8**
Control Stone	Test Run 1	(i)	47.7	Mean Recorded Value (C)
		(ii)	47.0	
	Test Run 2	(iii)	47.0	
		(iv)	47.3	= **47.3**

Corrected Polished Stone Value: S + 49* - C = **60**

Comments

*New Control Stone

Certificate Prepared by:- Mathew Sayer, Job Coordinator

Approved by: - Eric Goulden, Technical Manager

Trefelin Bangor Gwynedd LL57 4LH T +44 (0)1248 355269 F +44 (0)1248 351563 E postmaster@celtest.com W www.celtest.com

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Appendix 6.3d – PSV Results from Ardcahan Quarry Rock Aggregate Testing.

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APPENDIX 6.4
VCL SITE WALKOVER PHOTOGRAPHS

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FEBRUARY 2026

Ardcahan Quarry rEIAR – Chapter 6 Land Use, Soils (Geology)

Appendix 6.4 – VCL Site Walkover Photographs

Appendix 6.4 Ardcahan rEIAR-Land Use/Soils (Geology) Ardcahan Quarry VCL Site Walkover Photographs ~2014



Photo 01: View southwest of existing quarry which formed the main excavation area from 1990 to 2014.



Photo 02: Opposite view - north east towards existing double benched high wall & main qaurry area.

(This was the main area for extraction activity from 1990 to 2014.)



Photo 03: View south of ridge of rock which forms the boundary of the substitute consent area.



Photo 04: View west towards western boundary of substitute consent quarry area.



Photo 05: Internal road access to administration area and tarmacadam plant on east site of site.



Photo 06: View of crushed aggregate store area on eastern end of site – note quarry wall on north side.



Photo 07: View north across west side of the tarmac site with old quarry face in background.



Photo 08: View west across one of the ponds and scrub ground in the northern part of the site area.



Photo 09: View SW across the Tarmac Plant sludge deposition area at eastern end of the site. (Note that this area is now over grown and re-vegetated with sludge deposited in a contained area.)



Photo 10: View across base of dry, (now un-used) settlement pond in northern part of site.

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APPENDIX 6.5
IGI EIA GUIDANCE FIGS 1 & 2

VOLUME III
APPENDICES

FEBRUARY 2026

Ardcahan Quarry rEIAR – Chapter 6 Land Use, Soils (Geology)

Appendix 6.5 – IGI EIA Guidance Figures 1 & 2 (2013)

Figure 1 Flow Chart



*Matrix: See Figure 2 in Guidelines for the Preparation of the Soils, Geology and Hydrogeological Chapters of Environmental Impact Statements - Issued by the Institute of Geologists of Ireland (2013)

Figure 2 Activities /Environments Matrix

Environments	Activities: Earthworks	Storage / transmission of leachable and/or hazardous materials	Lowering of groundwater levels by pumping or drainage	Discharges to ground	Excavation of materials above the water table	Excavation of materials below the water table	Land-spreading	Abstraction / Discharge of energy (heat) from/to the ground
Type A	Invasive site works to characterise nature[1] and thickness of soil and subsoil e.g. trial pits or augering.	Establish nature and quantity of leachable materials.	Establish details of borehole /spring construction or drainage system structure details (as appropriate).	Complete a Risk Assessment as per EPA (2011) Guidance on the Authorisation of Discharges to Groundwater[2]; Apply Tier 1, 2 or 3 Assessment as appropriate	Site works to characterise nature[1], thickness, permeability and stratification of soils and subsoils e.g. trial pits, augering.	Site works to characterise nature[1], thickness, permeability and stratification of soils and subsoils e.g. trial pits, augering.	Establish the type of waste to be landspread.	Provide details of type of system (open/closed, shallow/deep). The site works required and described below will reflect the design parameters of the system being installed.
		Site works to characterise nature[1], thickness, permeability and stratification of soils, subsoils and bedrock geology e.g. trial pits, boreholes.	Establish sustainable yield and proposed daily abstraction rate or drainage system invert levels (as appropriate).		Site works to fully characterise the bedrock geology and in order to to define the resource volume/weight according to The PERC Reporting Standard[3] e.g. trenching, drilling, geophysics.	Site works to fully characterise the bedrock geology and in order to to define the resource volume/weight according to The PERC Reporting Standard[3] e.g. trenching, drilling, geophysics.	Undertake a walkover survey of the site.	Site works to characterise nature[1], thickness, permeability and stratification of soils, subsoils and bedrock geology.
		Works to determine groundwater level, e.g.mapping, monitoring in stand pipes, piezom-eters, or boreholes.	Works to determine summer level of the water table, annual actual recharge and proposed maximum drawdown. Measurement of effects of change in water level on nearby abstractions.		Works to determine groundwater level, flow direction and gradient; e.g.monitoring in stand pipes, piezometers, or boreholes.	Works to determine groundwater level, flow direction and gradient; e.g.monitoring in stand pipes, piezometers, or boreholes.	Review Groundwater Protection Responses for Landspreading[4], and apply Departmental[5] and Regularory[6] guidelines and best practice.	Design parameters for the system will be required to be collected, however these are out of the remit of this document - although any information gathered for design purposes should be used in the EIS.
						Characterisation of groundwater chemistry and quality.	Assign a response category.	
						If lowering of groundwater levels is required, then proceed also as for activity Lowering of water levels by pumping of drainage.		
Type B	*In addition to all the above;*	*In addition to all the above;*	*In addition to all the above;*	*As above;*	*As above;*	*As above;*	*In addition to all the above;*	*In addition to all the above;*
	Works to determine groundwater level, flow direction and gradient; e.g. monitoring in stand pipes, piezometers, or boreholes.	Works to determine groundwater flow direction and gradient; e.g. monitoring in stand pipes, piezometers, or boreholes.	Works to determine aquifer properties, seasonal variations in water levels, extent of cone of depression or drawdown of surrounding water levels (as appropriate) and alterations in groundwater flow pattern.				Site works to characterise subsoil/soil characteristics e.g. trial pits or augering.	Characterise baseline temperature of soil / groundwater and groundwater hydrochemistry and quality.
	Works to determine groundwater - surface water interactions.	Works to determine groundwater - surface water interactions.	Works to determine groundwater - surface water interactions and measure effects of drawdown in water levels on hydraulically connected surface waters and springs.					Works to determine groundwater level e.g.monitoring in stand pipes, piezometers, or boreholes.
								If it is proposed to discharge to surface water, then characterisation surface water quality, baseline temperature and flow rates.
Type C	*In addition to all the above;*	*In addition to all the above;*	*In addition to all the above;*	*As above;*	*As above;*	*As above;*	*In addition to all the above;*	*In addition to all the above;*
	Identify location and abstraction rate of nearby groundwater abstractions.	Measure or determine rate of groundwater flow/travel time.	Installation of sufficient monitoring wells to provide groundwater flow direction, gradient, flow pattern and rate of flow/travel time.				Confirm subsoil permeability in laboratory. Delineate inner and outer source protection areas and source protection zones.	Works to determine thermal and hydraulic conductivity of soil, subsoil and bedrock.
			Identify nearby geothermal systems, and discharges to groundwater				Establish water quality of groundwater abstraction. Undertake risk assessment if appropriate.	Identify location and abstraction rate of nearby groundwater abstractions.
Type D	*In addition to all the above;*	*In addition to all the above;*	*In addition to all the above;*	*In addition to all the above;*	*In addition to all the above;*	*In addition to all the above;*	*As for Type C above*	*In addition to all the above;*
	Regional study of karst in an area, including identified karst features (both mapped and identified during site walkovers).	Full detailed hydrogeo-logical assessment required in this situation.	Geotechnical assessment of risk of landslide or subsidence.	Geotechnical assessment of risk of landslide or subsidence.	Full detailed hydrogeological assessment required in this situation.	Geotechnical assessment of risk of landslide or subsidence.		Geotechnical assessment of risk of landslide or subsidence.
	Map bedrock topography.	Geotechnical assessment of risk of landslide or subsidence.			Geotechnical assessment of risk of landslide or subsidence.			
	Geotechnical assessment of risk of landslide or subsidence.							
Type E	Full detailed hydrogeological assessment required in this situation.	Full detailed hydrogeological assessment required in this situation.	Full detailed hydrogeo-logical assessment required in this situation.	Complete a Risk Assessment as per EPA (2011); Apply Tier 1, 2 or 3 Assessment as appropriate.	Full detailed hydrogeological assessment required in this situation.	Full detailed hydrogeological assessment required in this situation.	*As for Type C above*	Full thermogeological and/or hydrogeological assessment required in this situation.

Type A	Passive geological / hydrogeological environments
Type B	Natural dynamic hydrogeological environments
Type C	Man-made dynamic hydrogeological environments
Type D	Sensitive geological / hydrogeological environments
Type E	Groundwater dependent eco systems

Where works are required to characterise, establish, measure, determine or otherwise provide information, the level of activity and detail required will be informed by a combination of a) the potential impact of the proposed development , b) the scale of the proposed development and c) the professional judgement of the project geoscientist. In addition, the works are likely to be iterative, with new works required in reponse to information acquired during any phase of works.

1 Characterisation of soil and sub-soils to be carried out in accordance with a recognised standard or nomenclature system e.g. BS5930:1990 for subsoils or EPA Code of practice for Environmental Risk Assessment for Unregulated Waste Disposal sites where relevant
2 EPA, 2011. Guidance on the Authorisation of Discharges to Groundwater - Version 1 December 2011. www.epa.ie
3 The PERC Reporting Standard
4 Groundwater Protection Schemes (DoELG/EPA/GSI, 1999)
5 Control of Farm Pollution (DAFF, 1992) and the Code of Good Agricultural Practice to Protect Waters from Pollution by Nitrates (DoE and DAFF, 1996)
6 Landspreading of Organic Waste - Guidance on Groundwater Vulnerability Assessment of Land (EPA 2004)

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APPENDIX 7.1
EPA CATCHMENT MAPPING

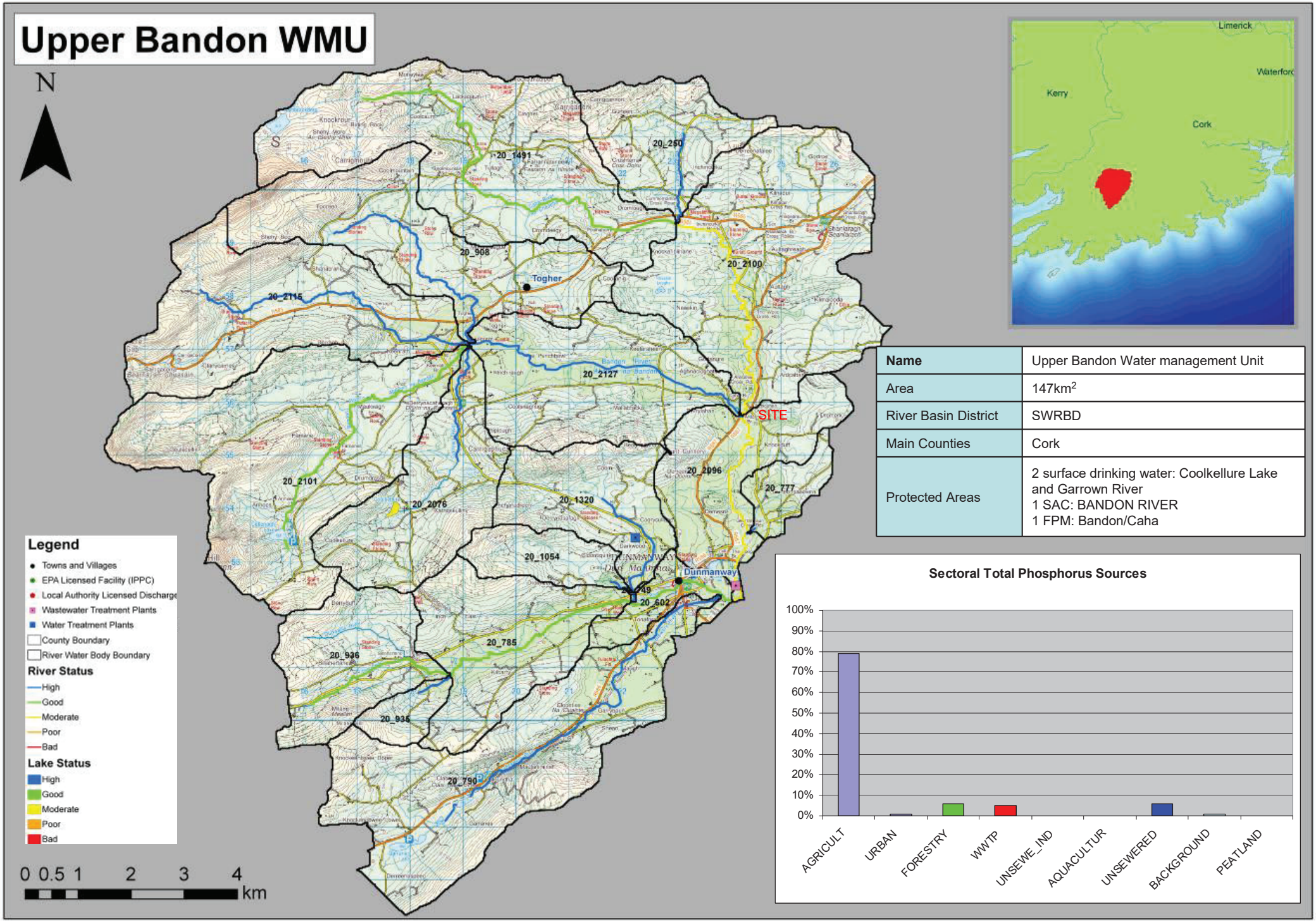
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Ardcahan Quarry rEIAR – Chapter 7 Water Attributes

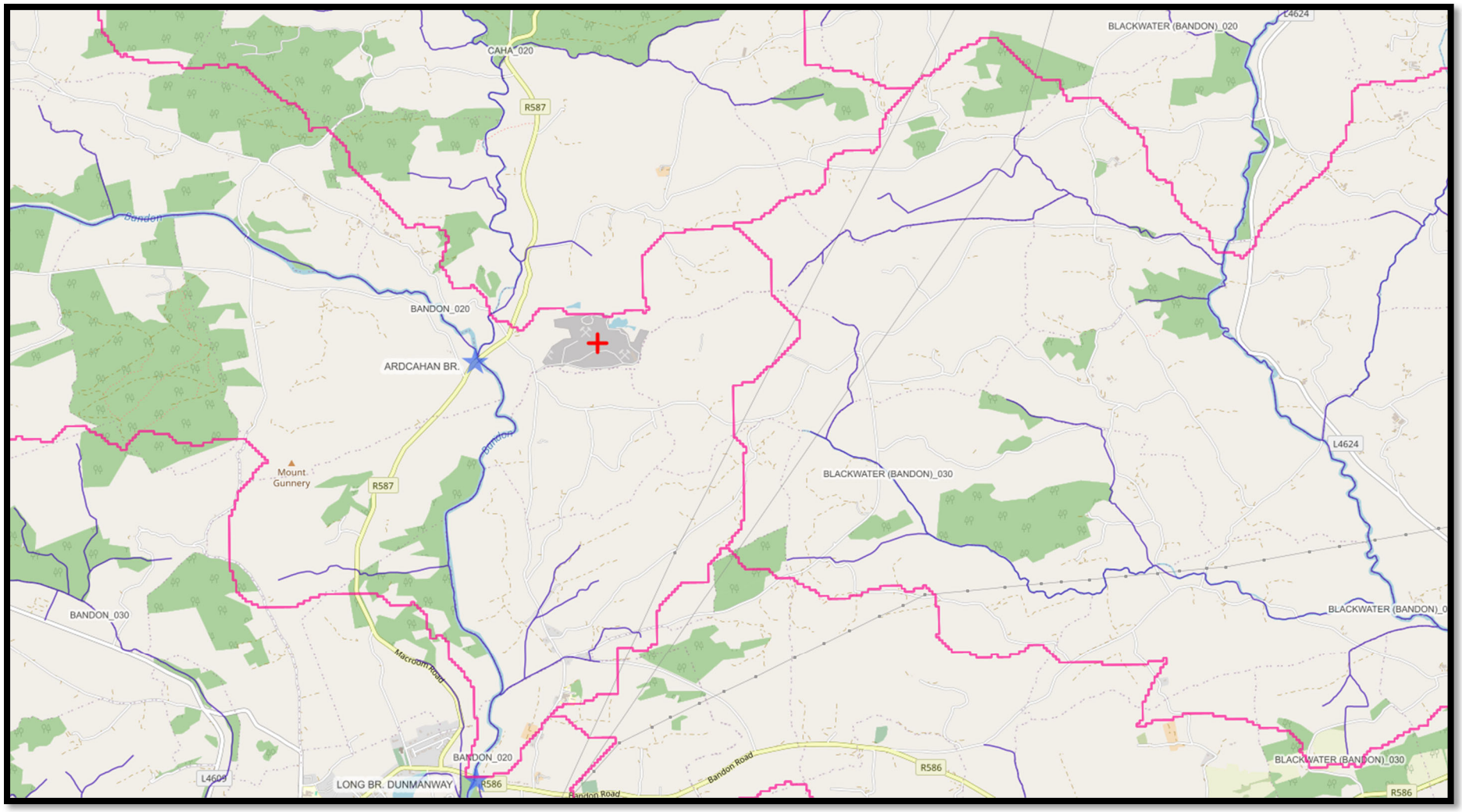
Appendix 7.1 – EPA Catchment Mapping

Upper Bandon WMU



Name	Upper Bandon Water management Unit
Area	147km^2
River Basin District	SWRBD
Main Counties	Cork
Protected Areas	2 surface drinking water: Coolkellure Lake and Garrown River 1 SAC: BANDON RIVER 1 FPM: Bandon/Caha

Calculated in accordance with OSPAR HARP Guidelines.
Not an indication of risk, rather an indication of potential to cause risk.



Appendix 7.1.1 – EPA Hydrology Mapping showing site location (red +), in the WFD Bandon_020 River Sub Basin Catchment. The northern fringe is along the boundary of the WFD Caha_020 River Sub Basin Catchment.

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Appendix 7.1.2 – EPA Hydrology Mapping showing site location (red +), in the Bandon_020 River Sub Basin Catchment.
(The northern fringe is along the boundary (yellow line) of the Caha_020 River Sub Basin Catchment.
The un-named stream that flows along the eastern and southern boundary of the quarry area is not mapped by the EPA.
(Note that the course of the un-named steam is shown as a dotted line as it represents the local townland boundary.)

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APPENDIX 7.2

ARDCAHAN QUARRY SUB-CATCHMENT MAP (with location of site walkover photos shown)

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FEBRUARY 2026

Ardcahan Quarry rEIAR – Chapter 7 Water Attributes

Appendix 7.2 – Ardcahan Quarry Sub-Catchment Map (with location of site VCL walkover photos shown)

APPENDIX 7.2 - Ardcahan Quarry rEIAR Water Chapter

Legend

- Rainfall Catchment Areas
- Potential Extraction Area
- Run off Direction
- Landholding
- P01 rEIAR Water Chp Site Photos
- Previously Permitted Tarmacadam Area

ARDCAHAN TD

A1 A2 A3 A4 A5 A6

A B C D E F G H K L

P01 P02 P03 P04 P05 P06 P07 P09 P10 P11 P12 P13 P14 P15 P16 P17 P18 P19 P20 P21 P23 P25 P27

1. VEHICLE PARKING AREA
2. HYDROCARBON TANKS ABOVE GROUND BUNDED
3. SMALL KEROCENE TANK (TO BE BUNDED)
4. POTENTIAL ATTENUATION POND AREA

- Roads/ Edges
- Buildings
- Working Face
- Drains
- Ponds
- BERM

REV.	DATE	ALTERATION	INT.
–	–		
–	–		
–	–		
–	–		

ASSOCIATED DRAWINGS

Drawing Title: SITE LAYOUT

Client: MURRAY BROS TARMACADAM LTD

Project: QUARRY SITE AT ARDCAHAN DUNMANWAY CO CORK

MICHAEL J BURNS
LAND SURVEYING & ARCHITECTURAL SERVICES
RIVERDALE SKIBBEREEN CO CORK
Tel 028 23720 086 3514466 Fax 028 23720
Email oddress:mickburns@eircom.net

Drawing Status: ISSUE FOR PLANNING

Scale:	1 - 1000	Date:	17/02/2015	Drawn By	M.J.B.
Dwg No:	Fig 01_DM			Rev. No:	—

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APPENDIX 7.2A
SITE WALKOVER PHOTOS

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FEBRUARY 2026

Ardcahan Quarry rEIAR – Chapter 7 Water Attributes

Appendix 7.2A – VCL Site Walkover Photos

Appendix 7.2A: Ardcahan Quarry rEIAR - Water Chapter
Site Photographs of Quarry Area from VCL Walkovers



Photo 01: View East across small lake/pond in upper part of site. (Pond C in Area 6).
This pond connects westwards to small Ponds D & E which reportedly drain (via pipe) to the local stream.

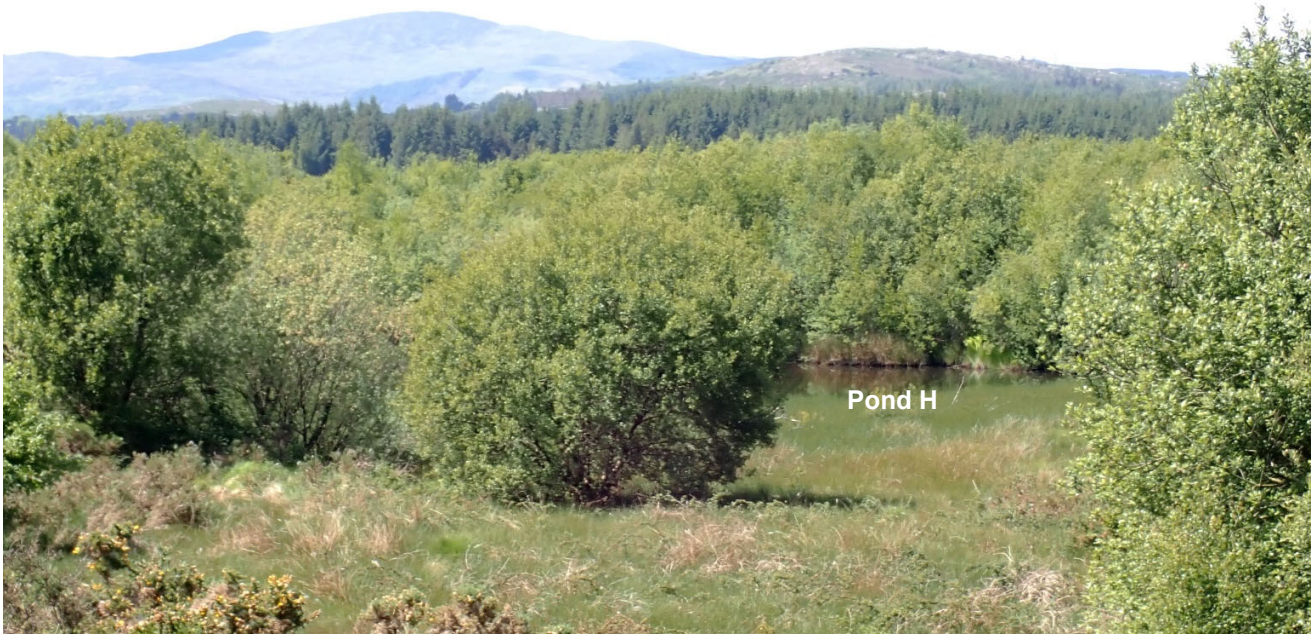


Photo 02: View west of upper settlement Pond H located on the NW corner of the site area.
(This pond was created by the deposition of subsoil material to create a track to the north of it).

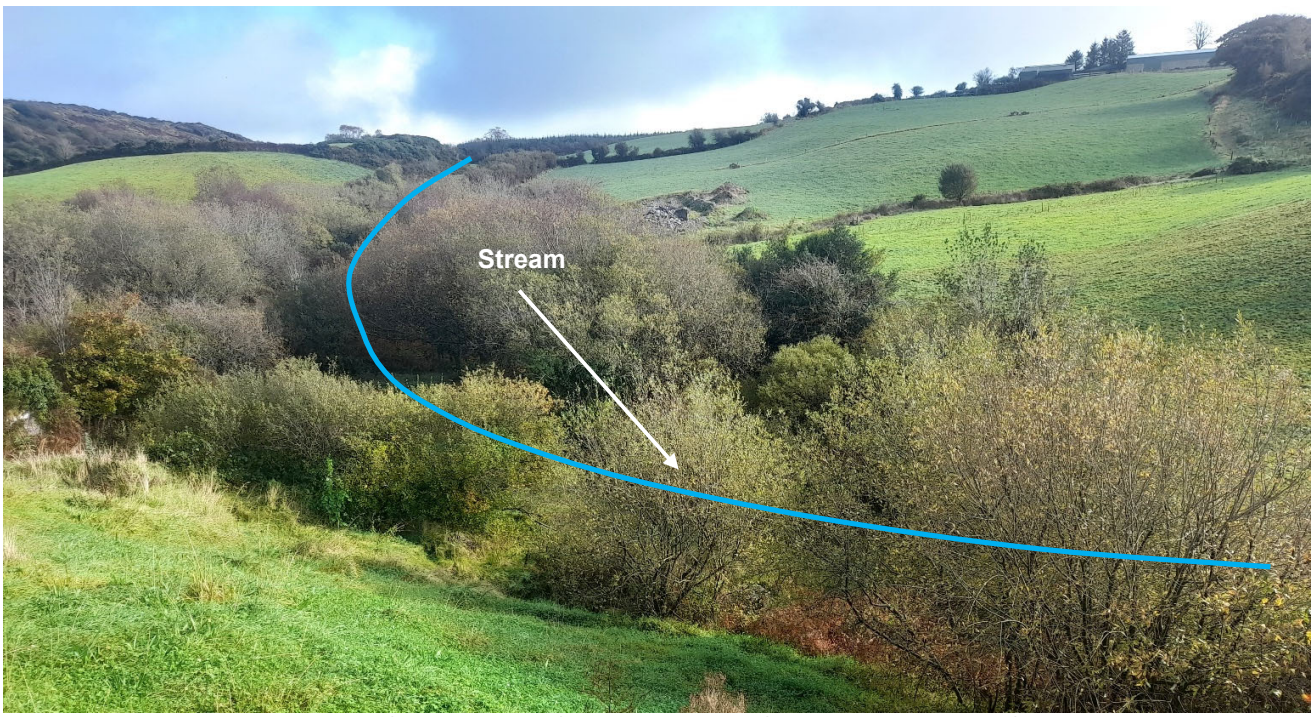


Photo 03: View North East from corner of site with view of upper catchment of small watercourse.



Photo 04: View south over South Eastern boundary of existing site with course of small stream.
(There is a clean water discharge (Location 01) from Ponds C, D & E on north side of site in this area.)



Photo 05: View of stream at discharge location 02 on eastern boundary of site upstream of tarmacadam aggregate storage area. This is also the upstream sampling location.

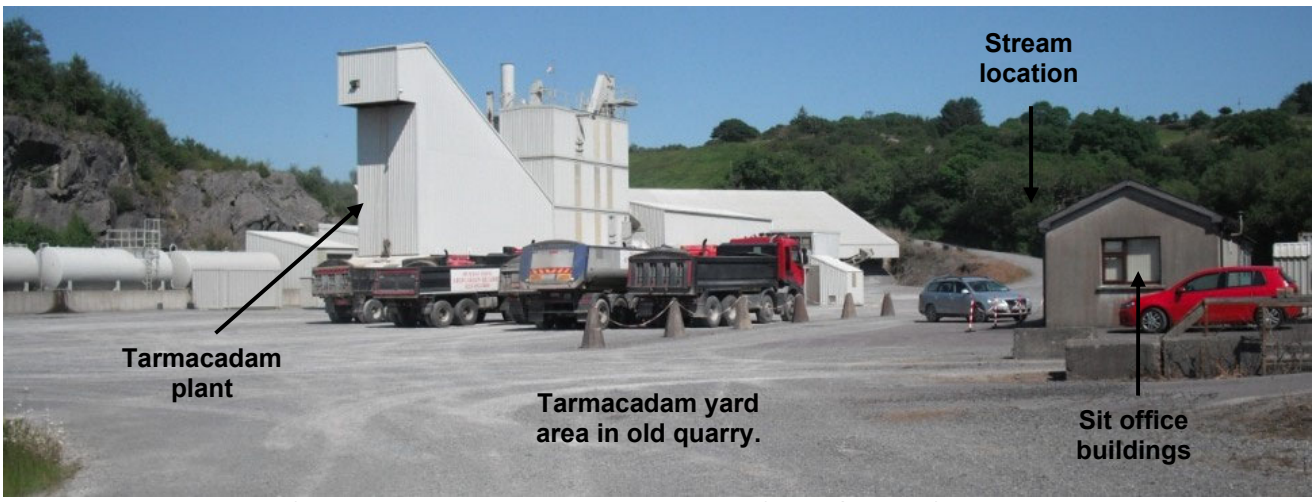


Photo 06: View east of tarmacadam plant area in east side of site. Stream flows in natural valley behind site. A berm prevents direct surface flows from roads, yard and process areas going to watercourse.

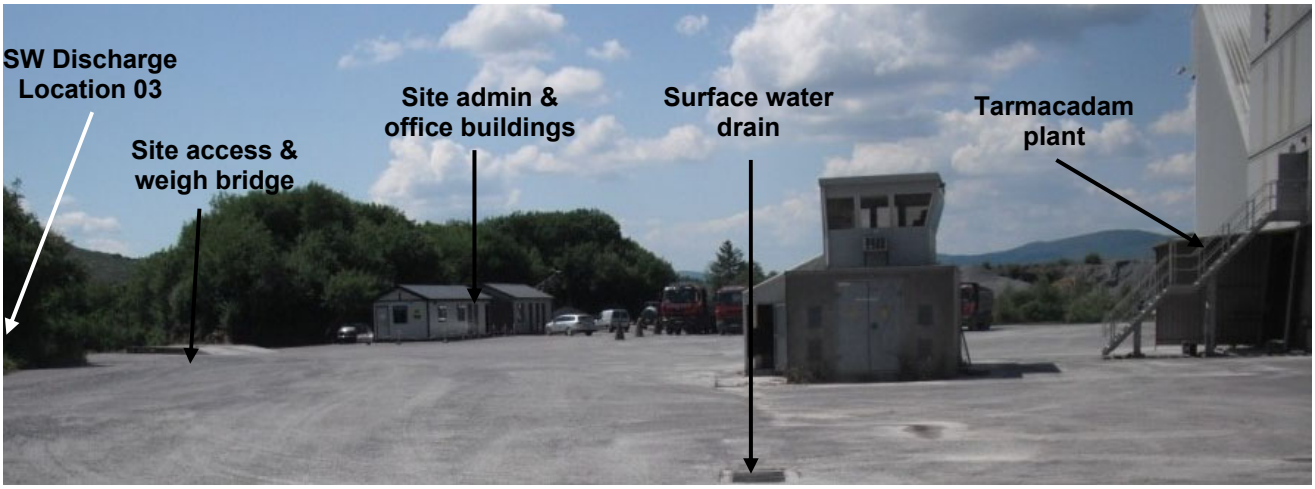


Photo 07: View west of site access to site offices and tarmacadam plant area. Three silt trap manholes in eastern side of tarmac site area discharge via a small interceptor to the stream via SW Discharge Loc 03.)



Photo 08: View of small water holding area downstream of interceptor before flowing to stream at Loc 03.



Photo 09: View south of part of settlement Pond F on western side of tarmacadam yard in old quarry.



Photo 10: Southern half of settlement Pond G in area on western side of tarmacadam yard in old quarry.



Photo 11: View East of Tarmac Area with small water storage & settlement Pond K backfilled, (arrow).



Photo 12: View east of double benched rock face of existing quarry area. (Note surface water seep on left hand side and pondng on quarry floor on right hand site of photograph).



Photo 13: View NE of existing quarry face from final floor level.



Photo 14: View southwest of SW portion of excavated area. Surface water ponding on quarry floor.



Photo 15: View west of SW corner of site area where surface water runoff from the access road and quarry floor area is contained in a pond area and allowed percolate to ground.



Photo 16: Settlement Pond I area in south western corner of site which percolates to ground or overflows.



Photo 17: View south from western boundary of quarry over site entrance, with Bandon River valley in background.



Photo 18: View North from main access road into the old quarry area.



Photo 19: View west along the main access road towards the sites entrance gates.
(Old concrete wall structures are on left and access to old quarry area (photo 18) is on the right.



Photo 20: View of some remaining water in the last attenuation area, Pond J, before it leaves site.



Photo 21: View of boundary stream on southern side of access road inside sites main gates.



Photo 22: View NE of private access road and gates to Ardcahan Quarry. Settlement Ponds I & J in the SW corner of site are located on the north side of the road near the access gate.



Photo 23: View of surface water discharge ditch coming from the site area before crossing under the road and joining the local stream.



Photo 24: View of quarry surface water discharge piped under access road to adjacent stream.



Photo 25: View SW of stream flowing under the public road bridge at the turn for the site access road.



Photo 26: View north (upstream) from Ardcahan Bridge of confluence of Caha & Bandon Rivers about 400m west of the site.



Photo 27: View south (downstream) of Bandon River from Ardcahan Bridge. The small water course adjacent to the quarry site enters the river approximately 500m downstream of this location.

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APPENDIX 7.3

ARDCAHAN QUARRY SUB-CATCHMENT AREA MAP (with location of site walkover photos shown)

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FEBRUARY 2026

Ardcahan Quarry rEIAR – Chapter 7 Water Attributes

Appendix 7.3 – Ardchan Quarry Sub-Catchment Area Map (with location of VCL site walkover photos shown)

APPENDIX 7.3 - Ardcahan Quarry rEIAR Water Chapter

Legend

- Rainfall Catchment Areas
- Potential Extraction Area
- Run off Direction
- Landholding
- P01 Site Photos
- Previously Permitted Tarmacadam Area

ARDCAHAN TD

A1 A2 A3 A4 A5 A6

A B C D E F G H J K L

P01 P02 P03 P04 P05 P06 P07 P08 P09 P10 P11 P12 P13 P14 P15 P16 P17 P18 P19 P20 P21 P22 P23 P24 P25 P26 P27 P28 P29 P30 P31

OVERFLOW WATERCOURSE

SILT POND

WATER PUMPED VIA 75mm

WASHER

WATER RELEASE VALVE

PROPOSED BERM END'S HERE

EXISTING BERM ENDS HERE

PIPE UNDER

CONC SURROUNDS TO FUEL BUND 0.25 M WIDE BY 1.2M HIGH

PROPOSED KERB CRASH BARRIER

END OF CONC

PROPOSED BE STARTS HERE

PIPE TO SUPPLY EXIST COMPRESSION FACILITY

MASTIC SEALED JACK AREA

PROPOSED INTERCEPTOR DISCHARGE TO STREAM

CHIP COATING AREA

EXISTING WATERCOURSE

PROPOSED WATER LEVER CONTROL

EXISTING BERM STARTS HERE

PROPOSED KERB CRASH BARRIER

PIPE UNDER

EXISTING BERM

BERM

1. VEHICLE PARKING AREA
2. HYDROCARBON TANKS ABOVE GROUND BUNDED
3. SMALL KEROCENE TANK (TO BE BUNDED)
4. POTENTIAL ATTENUATION POND AREA

- Roads/ Edges
- Buildings
- Working Face
- Drains
- Ponds
- BERM

REV.	DATE	ALTERATION	INT.
	-	-	
	-	-	
	-	-	
	-	-	

ASSOCIATED DRAWINGS

Drawing Title: SITE LAYOUT

Client: MURRAY BROS TARMACADAM LTD

Project: QUARRY SITE AT ARDCAHAN DUNMANWAY CO CORK

MICHAEL J BURNS
LAND SURVEYING & ARCHITECTURAL SERVICES
RIVERDALE SKIBBEREEN CO CORK
Tel 028 23720 086 3514466 Fax 028 23720
Email oddress:mickburns@eircom.net

Drawing Status: ISSUE FOR PLANNING

Scale:	1 - 1000	Date:	17/02/2015	Drawn By	M.J.B.
Dwg No:	Fig 01_DM			Rev. No:	—

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APPENDIX 7.3A
CATCHMENT AREAS SITE WALKOVER PHOTOS

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Ardcahan Quarry rEIAR – Chapter 7 Water Attributes

Appendix 7.3A – Catchment Areas Site Walkover Photos



Photo 7.3.01: View North West across lay down area on western side of quarry – Catchment Area A1.



Photo 7.3.02: View SW across low area which drains Ponds C, D and E to the stream Location 01 via to pipes buried under Area A1. (Hard core lay down area in Catchment A2 in background).

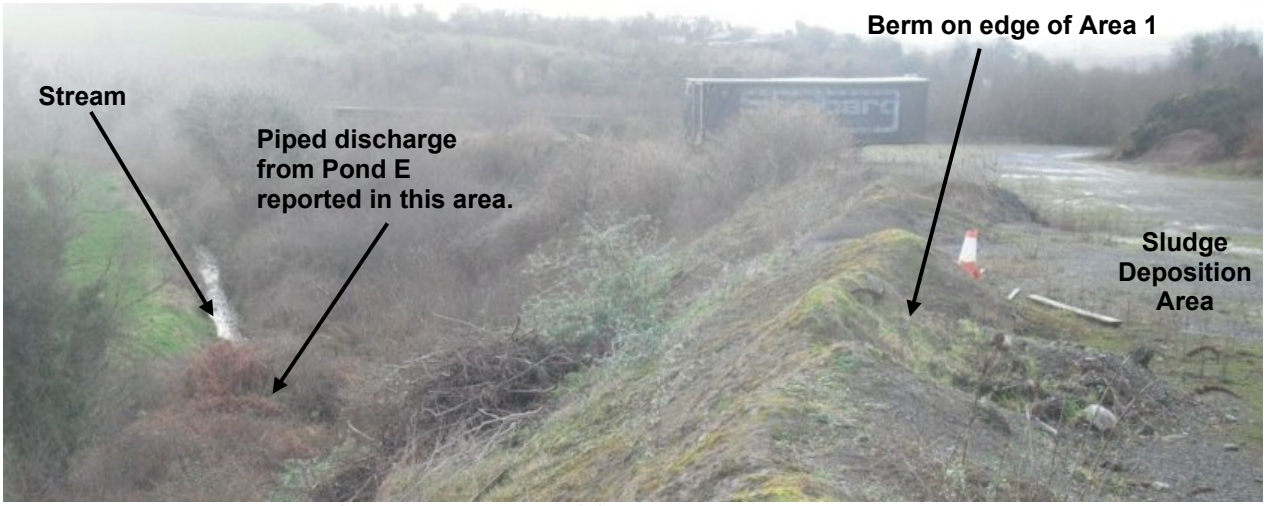


Photo 7.3.03: View South along edge of Catchment Area A1 and boundary with stream.



Photo 7.3.04: View NW of track to north side of site. Road drainage goes to the stream here. Location 01.



Photo 7.3.05: Road at back of aggregate warehouse next to stream. Near discharge Location 02.



Photo 7.3.06: View West across Bitumen Plant. Lower part of Catchment Area A2 which drains to stream via a number of silt trap drains and an interceptor.



Photo 7.3.07: View of fully bunded above ground oil tanks. Staining around fill point. (It is proposed to move all the fill points inside the berm)



Photo 7.3.08: View East of edge of Pond G in Catchment Area A3 into Bituman Plant area Area A2.



Photo 7.3.09: View West of chip coating hopper and conveyor system in Catchment Area A3.



Photo 7.3.10: View North across Pond G in Catchment Area A3. Water pumped to Pond K Washer and Mastic Block area from here.



Photo 7.3.11: View West of Pond F which takes runoff from central part of Catchment Area A3 and which can over flow to Pond G when full.



Photo 7.3.12: View North of part of Pond L which can overflow from this point through an interceptor through woods and discharge to the stream (Location 04) via a pipe under the sites access road.

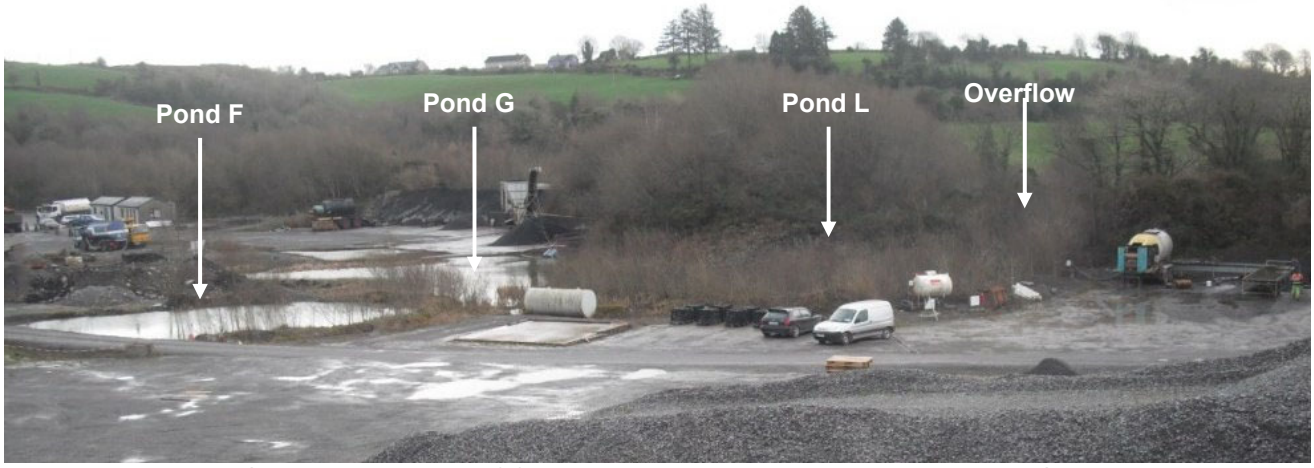


Photo 7.3.13: View SE over lower part of Catchment Area A3 with Pond F and Pond G visible. Pond L is in overgrown area behind the white van.



Photo 7.3.14: View East of small washer pond and aggregate screening conveyor in lower part of Area A3. (Note pipe going up old quarry face from washer pond to Pond A in upper part of Area A3.)

(Note that this aggregate washing infrastructure has been decommissioned and removed off site.)



Photo 7.3.15: View of Pond K adjacent to washer. Water was pumped from Pond G and Pond C as necessary. (This pond has been fully decommissioned and backfilled.)



Photo 7.3.16: View South over Pond A in upper part of Area 3. Silty water was pumped here from washer.



Photo 7.3.17: View South over Pond B which takes over flow water from Pond A and can release water to Pond G in the lower part of Catchment Area 3 as necessary.



Photo 7.3.18: View West across Pond C in Catchment Area A6. Pond D is to right hand side (off picture).



Photo 7.3.19:View East over Pond C in Catchment Area A6. Water was pumped to Ponds K or B if needed.



Photo 7.3.20: View West of water seeping from Pond C area down into main quarry.



Photo 7.3.21: View West of Pond H held in low lying area of Catchment Area 5.

(This area of the site is in the Caha River Catchment.)



Photo 7.3.22: View SE of rain water ponding in corner of existing quarry floor area in Catchment Area A4.



Photo 7.13.23: View SW across existing quarry floor area. Gradual slope to bottom SW corner of site.



Photo 7.3.24: View NW of main access to the existing quarry floor. Note that the runoff from the road is into the quarry area.



Photo 7.3.25: View West of main access road into the quarry. Note the camber of the road is away from the stream and there is an earthen berm along the road edge almost as far as the access gate.



Photo 7.3.26: View SW across the main attenuation Pond I in the SW corner of the site. A flow control on the down gradient berm of this pond would enable a much larger attenuation pond area to be created.



Photo 7.3.27: View NE of the second attenuation Pond J in SW corner of the site. The berm in this view has an overflow pipe which if replaced by a Floating Decanter and water release system, would increase and control the capacity of the first pond area (Pond I).



Photo 7.3.28: View SW of water from attenuation ponds in marshy grassland area in SW corner of the site.



Photo 7.3.29: View of southern area of Pond I in the SW corner of site during dry conditions. Surface water is held in this area before over topping to the adjacent Pond J and flowing to the final drainage ditch and local stream (Site Discharge Location 05).



Photo 7.3.30: View NE of access road into the quarry.
There is a council road drain which runs under the public road to the stream in this location.



Photo 7.3.31: View of stream flowing under bridge over public road adjacent to access road to quarry.
(This is ~15m down from where the attenuated quarry water enters the stream).

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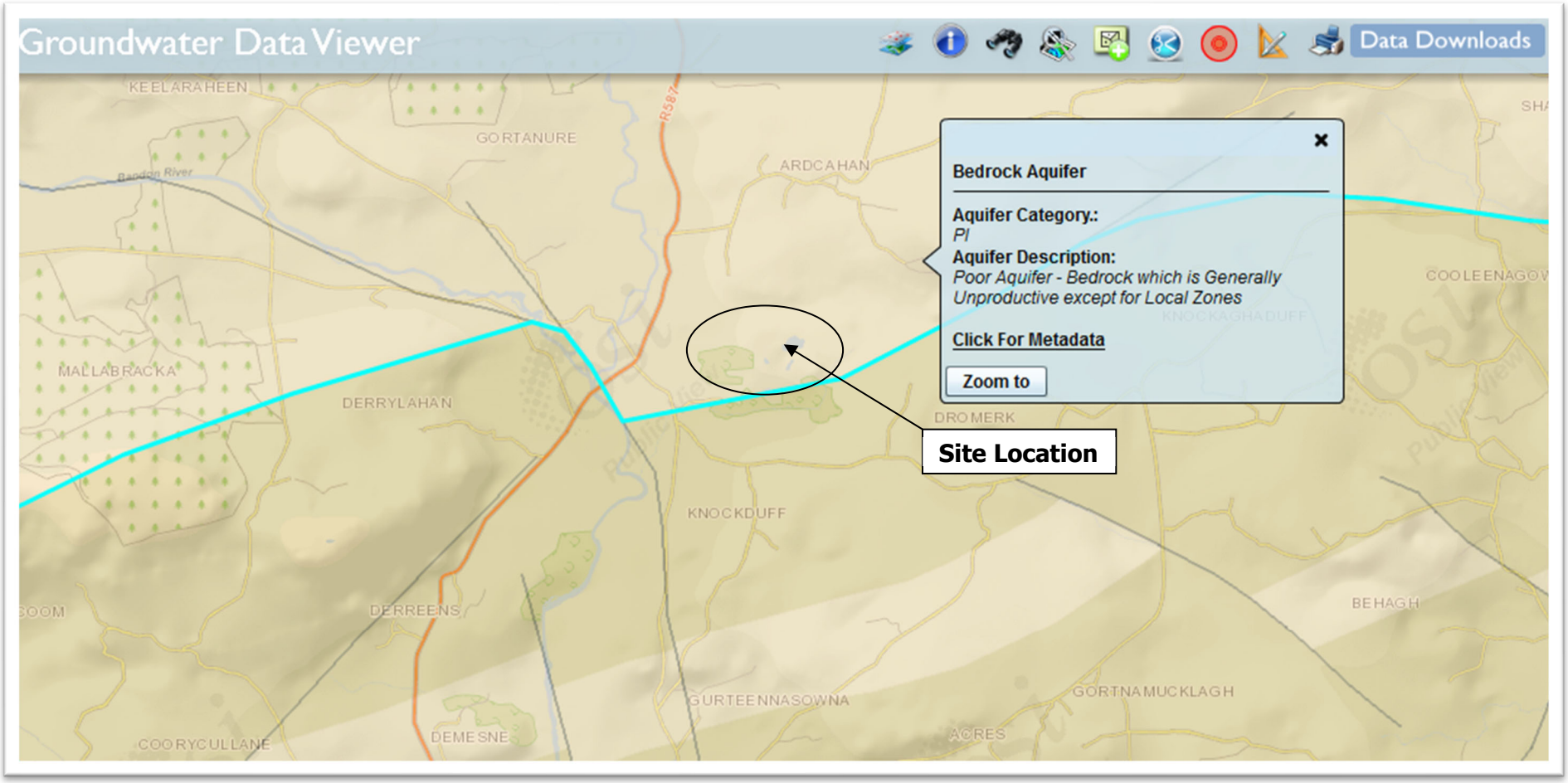
APPENDIX 7.4
GSI HYDROGEOLOGY MAPPING

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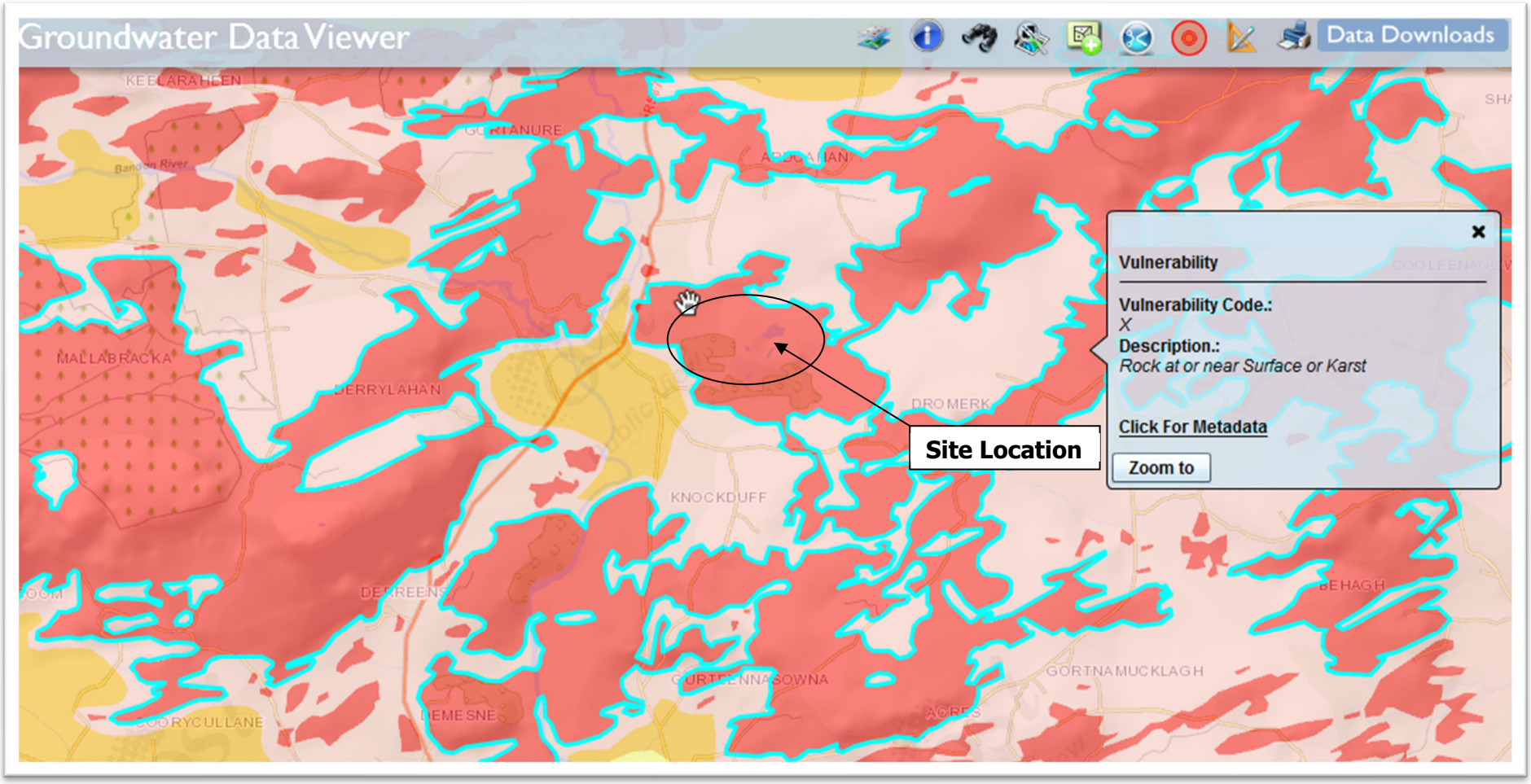
Ardcahan Quarry rEIAR – Chapter 7 Water Attributes

Appendix 7.4 – GSI Hydrogeology Mapping



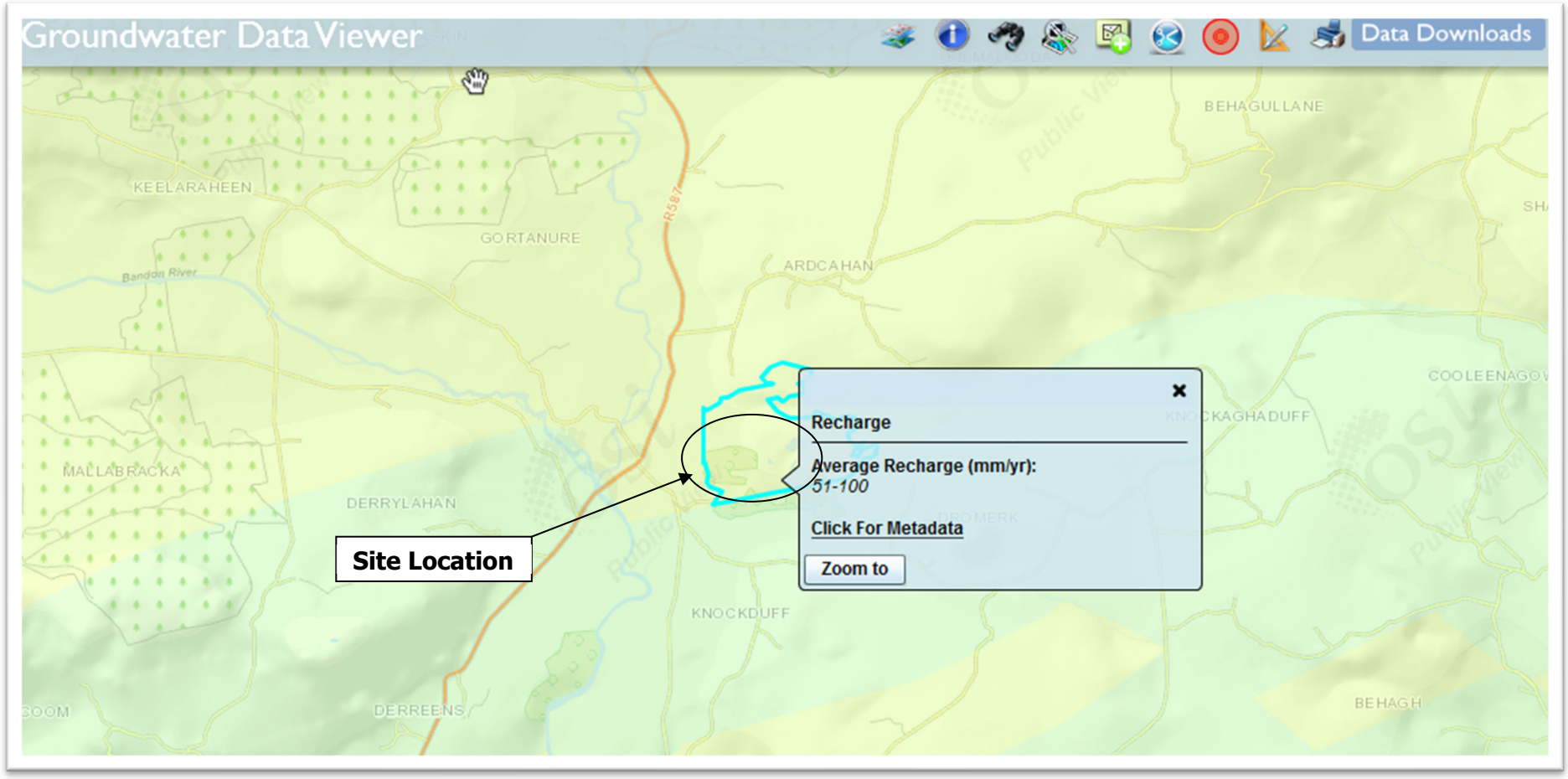
Appendix 7.4.1: Map 1 Regional Aquifer Map indicating that the Ardcahan Quarry site is on a 'Poor Aquifer', (source GSI online mapping).

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Appendix 7.4.2: Map 2 Regional Vulnerability Map showing site as 'extremely vulnerable', (sourced from GSI online mapping).

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Appendix 7.4.3 – Map 3 Regional Bedrock Recharge Data Map (sourced from GSI online mapping).

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APPENDIX 7.5
MET ÉIREANN DDF SITE DATA TABLE

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Ardcahan Quarry rEIAR – Chapter 7 Water Attributes

Appendix 7.5 – Met Eireann DDF Site Data Table

Met Eireann
Return Period Rainfall Depths for sliding Durations
Irish Grid: Easting: 124723, Northing: 55805,

	Interval		Years											
DURATION	6months,	1year,	2,	3,	4,	5,	10,	20,	30,	50,	75,	100,	150,	200,	250,	500,
5 mins	3.3,	4.1,	4.5,	5.1,	5.4,	5.7,	6.5,	7.3,	7.8,	8.5,	9.1,	9.6,	10.3,	10.8,	11.2,	N/A ,
10 mins	4.7,	5.7,	6.3,	7.0,	7.5,	7.9,	9.0,	10.2,	10.9,	11.9,	12.7,	13.4,	14.3,	15.0,	15.5,	N/A ,
15 mins	5.5,	6.8,	7.4,	8.3,	8.9,	9.3,	10.6,	12.0,	12.9,	14.0,	15.0,	15.7,	16.8,	17.6,	18.3,	N/A ,
30 mins	7.6,	9.4,	10.3,	11.6,	12.4,	12.9,	14.8,	16.7,	17.9,	19.5,	20.9,	21.9,	23.4,	24.6,	25.5,	N/A ,
1 hours	10.7,	13.2,	14.4,	16.1,	17.2,	18.1,	20.6,	23.3,	25.0,	27.2,	29.2,	30.6,	32.7,	34.3,	35.6,	N/A ,
2 hours	14.9,	18.4,	20.1,	22.5,	24.0,	25.2,	28.8,	32.5,	34.9,	38.0,	40.7,	42.7,	45.6,	47.8,	49.6,	N/A ,
3 hours	18.0,	22.3,	24.4,	27.3,	29.2,	30.6,	35.0,	39.5,	42.4,	46.2,	49.4,	51.8,	55.4,	58.1,	60.3,	N/A ,
4 hours	20.7,	25.6,	28.0,	31.4,	33.5,	35.1,	40.1,	45.4,	48.6,	53.0,	56.7,	59.5,	63.6,	66.7,	69.2,	N/A ,
6 hours	25.2,	31.1,	34.0,	38.1,	40.7,	42.7,	48.8,	55.1,	59.1,	64.4,	68.9,	72.3,	77.3,	81.0,	84.1,	N/A ,
9 hours	30.6,	37.8,	41.3,	46.3,	49.5,	51.9,	59.2,	67.0,	71.8,	78.2,	83.7,	87.8,	93.9,	98.5,	102.1,	N/A ,
12 hours	35.1,	43.4,	47.4,	53.1,	56.8,	59.5,	68.0,	76.9,	82.4,	89.8,	96.1,	100.8,	107.8,	113.0,	117.3,	N/A ,
18 hours	42.6,	52.7,	57.6,	64.5,	69.0,	72.3,	82.6,	93.4,	100.1,	109.1,	116.7,	122.5,	130.9,	137.3,	142.5,	N/A ,
24 hours	49.0,	60.5,	66.1,	74.1,	79.2,	83.0,	94.9,	107.2,	114.9,	125.3,	134.0,	140.6,	150.3,	157.7,	163.6,	183.3,
2 days	63.5,	76.9,	83.4,	92.4,	98.2,	102.5,	115.6,	129.2,	137.5,	148.7,	158.1,	165.1,	175.4,	183.1,	189.3,	209.9,
3 days	75.9,	90.9,	98.1,	108.0,	114.3,	119.0,	133.2,	147.9,	156.9,	168.8,	178.8,	186.2,	197.1,	205.3,	211.8,	233.4,
4 days	87.2,	103.5,	111.3,	122.1,	128.9,	133.9,	149.2,	164.8,	174.3,	186.9,	197.5,	205.3,	216.7,	225.2,	232.1,	254.6,
6 days	107.9,	126.5,	135.4,	147.6,	155.2,	160.8,	177.8,	195.1,	205.6,	219.4,	231.0,	239.5,	251.9,	261.1,	268.5,	292.7,
8 days	126.9,	147.7,	157.4,	170.8,	179.2,	185.3,	203.9,	222.6,	234.0,	248.9,	261.2,	270.3,	283.7,	293.5,	301.3,	327.0,
10 days	144.9,	167.6,	178.2,	192.6,	201.7,	208.3,	228.2,	248.3,	260.4,	276.2,	289.4,	299.0,	313.1,	323.5,	331.8,	358.8,
12 days	162.3,	186.6,	198.0,	213.5,	223.1,	230.2,	251.4,	272.6,	285.4,	302.2,	316.0,	326.2,	341.0,	351.8,	360.5,	388.8,
16 days	195.5,	223.0,	235.8,	253.1,	263.8,	271.7,	295.1,	318.6,	332.6,	350.9,	366.0,	377.1,	393.2,	405.0,	414.4,	444.9,
20 days	227.5,	257.8,	271.8,	290.8,	302.5,	311.0,	336.6,	361.9,	377.1,	396.8,	413.0,	424.9,	442.1,	454.7,	464.8,	497.2,
25 days	266.2,	299.8,	315.3,	336.1,	348.9,	358.3,	386.1,	413.6,	430.1,	451.4,	468.9,	481.6,	500.1,	513.7,	524.4,	559.1,

NOTES:
N/A Data not available
These values are derived from a Depth Duration Frequency (DDF) Model
For details refer to:
'Fitzgerald D. L. (2007), Estimates of Point Rainfall Frequencies, Technical Note No. 61, Met Eireann, Dublin',
Available for download at www.met.ie/climate/dataproducts/Estimation-of-Point-Rainfall-Frequencies_TN61.pdf

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APPENDIX 7.6
OPW FLOOD MAPS

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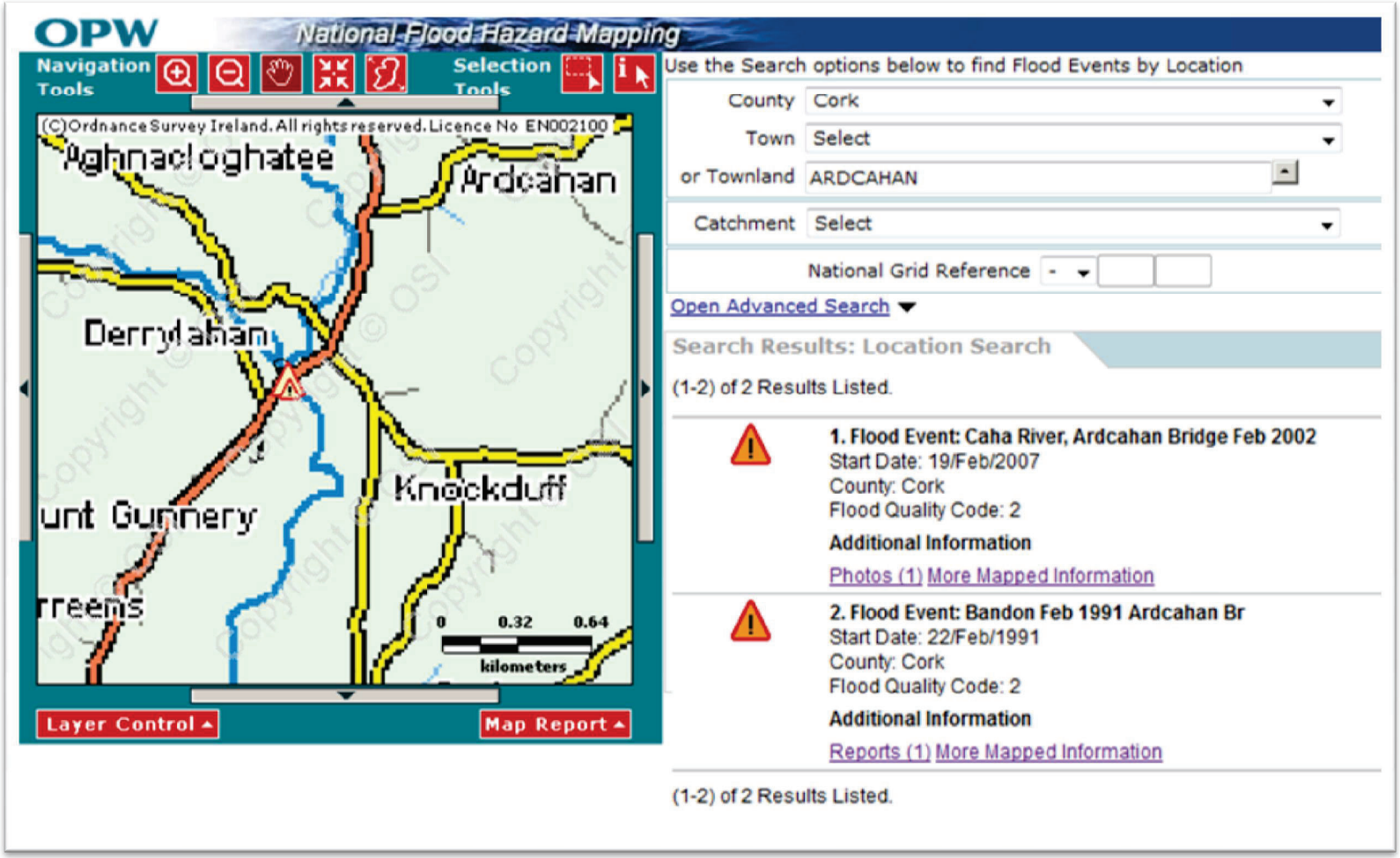
Ardcahan Quarry rEIAR – Chapter 7 Water Attributes

Appendix 7.6 – OPW Flood Maps



Figure 7.4: Image of OPW National Indicative Flood Risk Hazard Mapping for the Bandon and Caha Rivers at Ardcahan. (Note that the Ardcahan Quarry site area is shown to be outside the map extent of any of the OPW fluvial and pluvial flood hazard flooding scenarios of low, medium or high probability. The Ardcahan Quarry does not form any part of the flood plain for the Caha or Bandon River systems and no part of the proposed development is in a flood risk area or has any history of flooding. The NIFM modelled flood extents for the Mid-Range and High-End Future Scenarios in relation to fluvial flooding and climate change risk and the mapped flood extents do not change for the Ardcahan Quarry Risk, <www.floodinfo.ie>).

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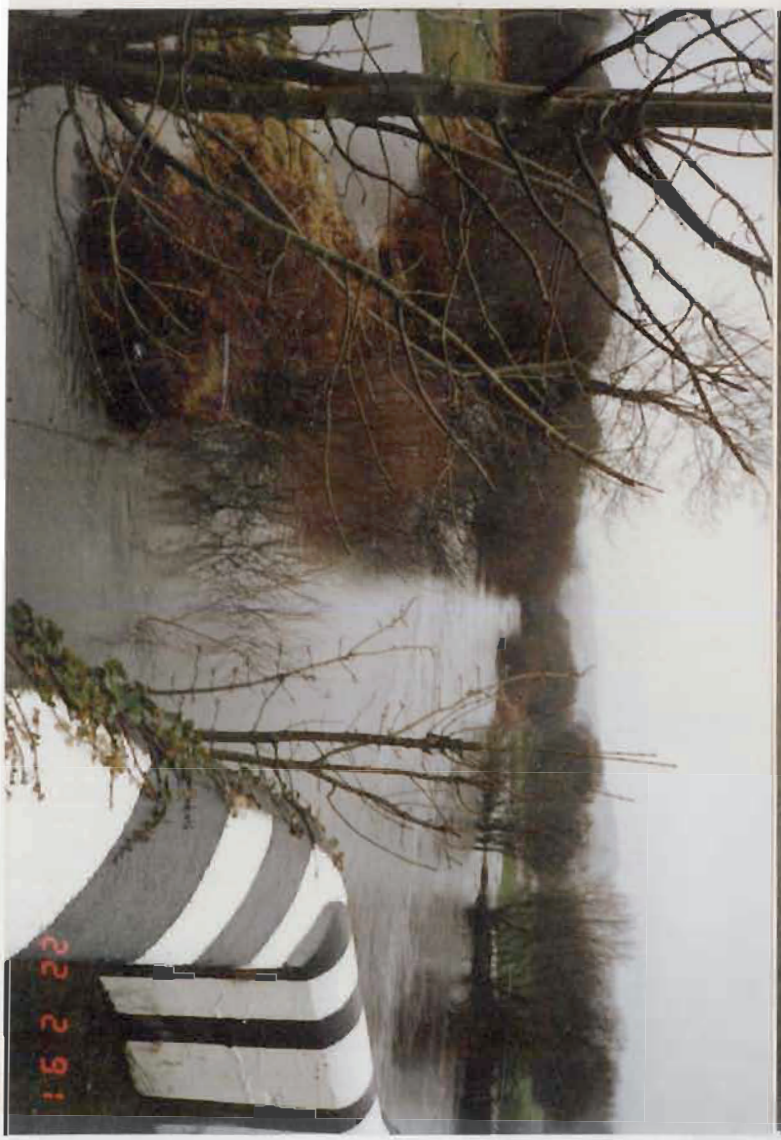


Appendix 7.6.2: OPW data on flood events recorded at the Ardcahan Bridge, (from on-line OPW Flood Mapping).

22/2/91 ARDCAHAN BR SCR 1.06 m



LOOKING U/S FROM BR. → LB



LOOKING U/S FROM BR → LB



LOOKING D/S FROM BR → LB.

22/2/91

ARDCAHAN BR. STGR 1.57 m

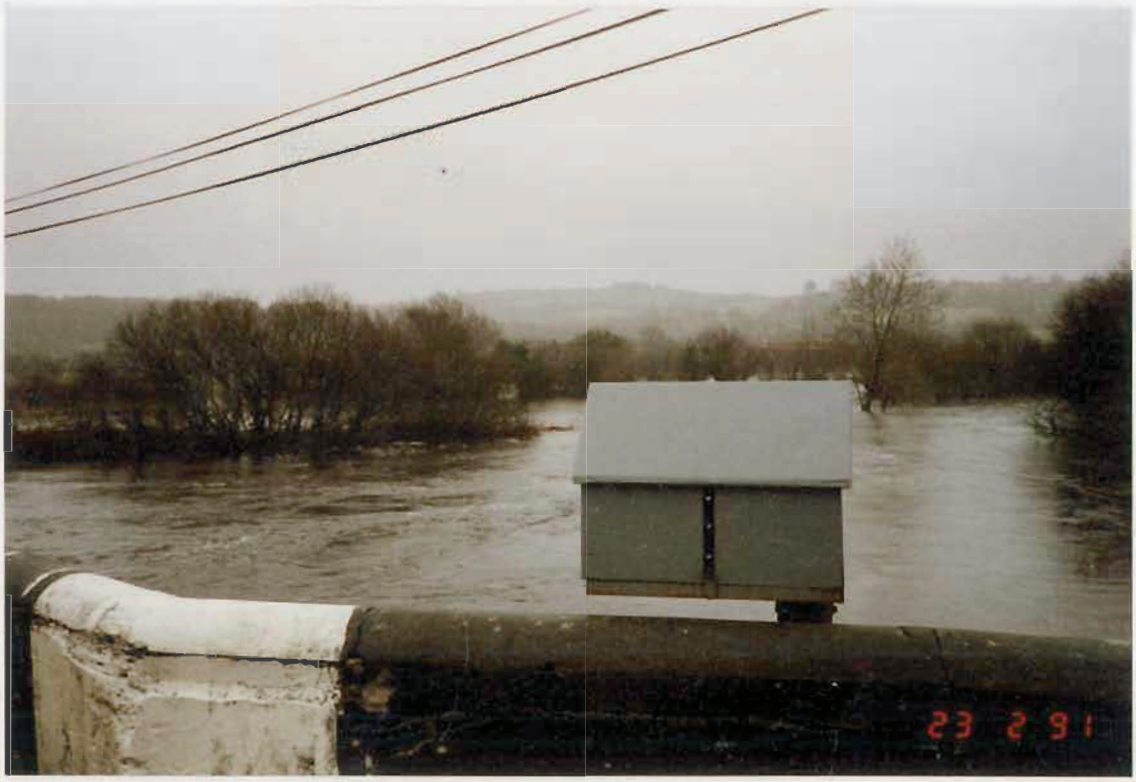


D/S FACE OF BR & STAFF @ PEAK. FROM RB.



23/2/91

ARDCAHAN BR St GR 1.635



LOOKING D/S FROM BR.



LOOKING D/S FROM BR.

23/2/91 ARDCAHAN BR. SIGR 1.635 m



LOOKING U/S FROM BR → LB.

Murray Brothers Tarmacadam Ltd

APPENDIX 8.1
AIR QUALITY EMISSION FACTORS

VOLUME III
APPENDICES

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APPENDIX 8.1 - EMISSION FACTORS

Emission Factors Used In Dust Emission Calculations (USEPA, 1986 & subsequent updates):

Road Haulage (Unpaved)

$E = [281.9 * k * (s/12)^a (W/3)^b ((365-P)/365)$ g/veh km

Where:

s = surface silt content (8.3%)

k = 4.9 (Total Dust), 1.8 (PM_{10}), 0.15 ($PM_{2.5}$)

W = mean vehicle weight (32 tonnes)

a = 0.9 ($PM_{10}/PM_{2.5}$), 0.7 (Total Dust)

b = 0.45

P = 218 wet days

Road Haulage (Paved)

$E = [k * (sL)^{0.91} * (W)^{1.02}](1-(P)/4N)$ g/veh km

Where:

sL = surface silt loading (0.6 g/m^2)

k = 24 (Total Dust), 4.6 (PM_{10}), 0.66 ($PM_{2.5}$)

W = mean vehicle weight (32 tonnes)

P = 218 wet days

N = 365 days

Material Loading

$E = k(0.0016) * (U/2.2)^{1.3} / (M/2)^{1.4} ((365-P)/365)$ kg/Mg

Where:

k = 0.74 (Total Dust), 0.35 (PM_{10}), 0.053 ($PM_{2.5}$)

M = moisture content (2.0%)

U = mean wind speed (5.0 m/s)

P = 218 wet days

Wind Erosion of Stockpiles

The formulae for calculating wind erosion can be found in section 13.2.5 of AP42 titled "Industrial Wind Erosion". Information on monthly peak wind speeds and the number of gales per month is required in order to calculate the emission rates.

Screening

$E = ((T*K)/(H*3600*A)) * ((365-P)/365)$ g/s/m^2

Where:

T = Annual Tonnage of Material (93,083 T)

K = 12.5 (Total Dust), 4.3 (PM_{10}) , 0.28 ($PM_{2.5}$)

H = Annual Hours of Operation (2850 hours)

A = Area of Activity

P = 218 Wet Days

Crushing

E = ((T*K)/(H*3600*A))*((365-P)/365) g/s/m^2

Where:

T = Annual Tonnage of Material (93,083 T)

K = 2.7 (Total Dust), 1.2 (PM_{10}) , 0.22 ($PM_{2.5}$)

H = Annual Hours of Operation (2850 hours)

A = Area of Activity

P = 218 Wet Days

Conveyor

E = ((T*K)/(H*3600*A))*((365-P)/365) g/s/m^2

Where:

T = Annual Tonnage of Material (93,083 T)

K = 1.5 (Total Dust), 0.55 (PM_{10}) , 0.14 ($PM_{2.5}$)

H = Annual Hours of Operation (2850 hours)

A = Area of Activity

P = 218 Wet Days

Blasting

E = ((((AB)$^{1.5}$)*K)*B)/(H*3600)*A)

Where:

AB = Area of Blast (1647m^2 approximately)

K = 0.22 (Total Dust), 0.114 (PM_{10}), 0.0066 ($PM_{2.5}$)

H = Annual Hours of Operation (2850 hours)

A = Area of Excavation

B = No. of Blasts per annum (2 no.)

Operation	**Total Dust Emission Rate**	**PM_{10} Emission Rate**	**$PM_{2.5}$ Emission Rate**
Conveyor Transfer (g/s/m^2)	1.47E-05	5.37E-06	1.37E-06
Screening (g/s/m^2)	1.22E-04	4.20E-05	2.74E-06
Crushing (g/s/m^2)	2.64E-05	1.17E-05	2.15E-06
Blasting (g/s/m2)	5.72E-08	2.95E-08	1.82E-09
Material Loading (g/s/m^2)	6.05E-05	2.86E-05	4.33E-06

Operation	Total Dust Emission Rate	PM_{10} Emission Rate	$PM_{2.5}$ Emission Rate
Aggregate Storage (g/s/m_2)	1.35E-06	6.38E-07	9.67E-08
Paved Roads (g/s) per source every 5 m	3.88E-04	1.29E-05	3.13E-06
Unpaved Roads (g/s) per source every 5 m	5.86E-05	2.00E-05	1.67E-06

Murray Brothers Tarmacadam Ltd

APPENDIX 14.1
AMPHIBIAN REPORT

VOLUME III
APPENDICES

FEBRUARY 2026

February 2026

Amphibian Survey Report

Ardcahan Quarry

Murray Brothers Tarmacadam's Ltd.

Ardcahan Quarry, Dunmanway, Co. Cork

MALONE O'REGAN ENVIRONMENTAL

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Form ES - 04

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Job Number: E2049

Prepared By: Niamh Doyle **Signed:** Niamh Doyle

Checked By: Annie Coady **Signed:** Annie Coady

Approved By: Dyfrig Hubble **Signed:**

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	18/02/26	Report	Final	ND	AC	DH

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Malone O'Regan Environmental ('MOR Environmental') has prepared this report for the sole use of our client (as named on the front of the report) in accordance with the Client's instructions using all reasonable skill and competence and generally accepted consultancy principles. The report was prepared in accordance with the budget and terms of reference agreed with the Client and does not in any way constitute advice to any third party who is able to access it by any means. MOR Environmental excludes to the fullest extent lawfully permitted all liability whatsoever for any costs, liabilities or losses arising as a result of or reliance upon the contents of this report by any person or legal entity (other than the Client in accordance with the terms of reference). MOR Environmental has not verified any documents or information supplied by third parties and referred to herein in compiling this document and no warranty is provided as part of this document. No part of this report may be copied or reproduced without express written confirmation from MOR Environmental. Any methodology contained in this report is provided to the Client in confidence and must not be disclosed or copied to third parties without the prior written agreement of MOR Environmental. Disclosure of such information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Third parties who obtain access to this report by any means, including disclosure by the Client, will be subject to the Copyright and Third-Party Disclaimer contained herein.

Amphibian Survey Report

Ardcahan Quarry

Murray Brothers Tarmacadam's Ltd.

Ardcahan Quarry, Dunmanway, Co. Cork

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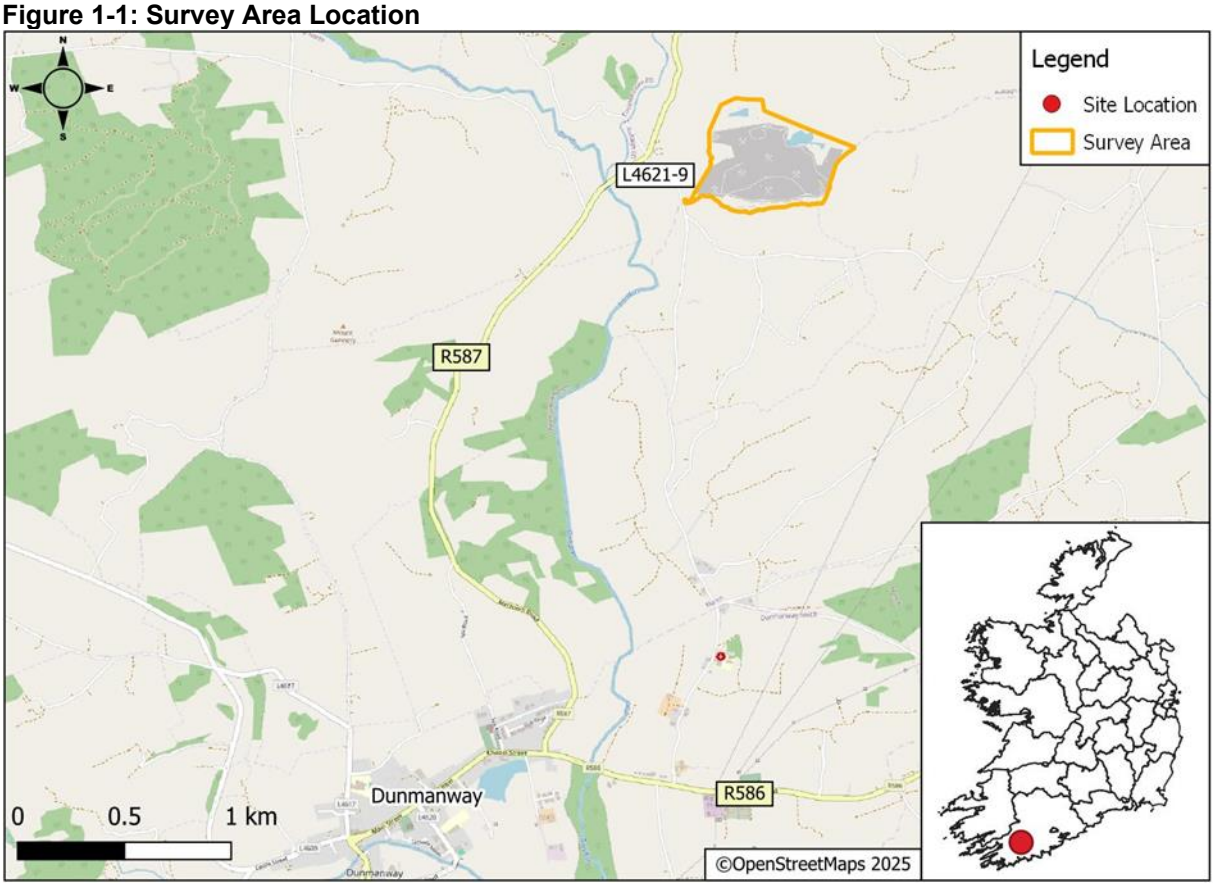
1 INTRODUCTION

This report has been prepared by Malone O'Regan Environmental ('MOR Environmental') on behalf of our client Murray Brothers Tarmacadam Ltd ('the Applicant'), to present the findings of amphibian surveys for common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*) undertaken at Ardcahan Quarry, Dunmanway, Co. Cork ('the Survey Area').

The Survey Area lies in the townland of Ardcahan, Co. Cork (ITM OS Reference W 25061 55898), circa ('ca.') 3.5km northeast of Dunmanway, Co. Cork. The Survey Area covers an area of ca. 25 hectares ('ha').

The location of the Survey Area is shown in Figure 1-1.

Figure 1-1: Survey Area Location



1.1 Background

The Survey Area is within an existing limestone quarry of pre-1960s origin. The northern area of the Survey Area has yet to be developed or extracted, but sections were used for settlement ponds. The Applicant operates a tarmacadam plant in the southwest of the Survey Area.

Substitute Consent is being sought under Section 177E of the Planning and Development Act, 2000, as amended, to regularise a ca. 25ha area of land within the Applicant's landholding, which has been subjected to gravel and soft rock extraction and processing.

1.2 Statement of Authority

This report was approved by Mr. Dyfrig Hubble, Associate Director - Ecologist. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management ('CIEEM'). Dyfrig has over 18 years' experience working in the ecological consultancy sector, including habitat surveys and appraisals and specialist protected species surveys in support of Appropriate Assessments and Ecological Impact Assessments.

1.3 Project Objective

The objective of this assessment was to identify the presence / absence of amphibians in the Survey Area and the potential impacts that may have occurred as part of the works undertaken within the Survey Area.

1.4 Survey Area Context

The Survey Area is ca. 25ha in size, located ca. 3.5km northeast of Dunmanway, Co. Cork. The Survey Area is accessed via the L4621-9 local road, known locally as 'Hospital Road', which is along the regional road R587, that connects Dunmanway and Macroom, Co. Cork.

The Survey Area is comprised primarily of exposed rock, immature woodland, oak-birch-holly-woodland, heath, scrub and ponds.

The Survey Area is located in a rural setting, characterised by undulating topography, irregularly shaped fields and clusters of mixed woodland. The land immediately around the quarry consists of scrub, woodland and agricultural grassland. Land uses in the surrounding area primarily comprise livestock farming and rural housing.

The nearest dwellings to the Survey Area are located approximately 300m south, 275m west, 450m north and 400m east of the Survey Area. There are no commercial premises or community facilities in the immediate environs.

The junction of the Caha and Bandon Rivers is located approximately 400m west of the Survey Area. A small watercourse that flows into the Bandon River extends along the eastern and southern boundaries of the landholding. The lands are sloped with lower ground levels in the southwest (~72 to 75 MOD1) rising to the north (118 MOD).

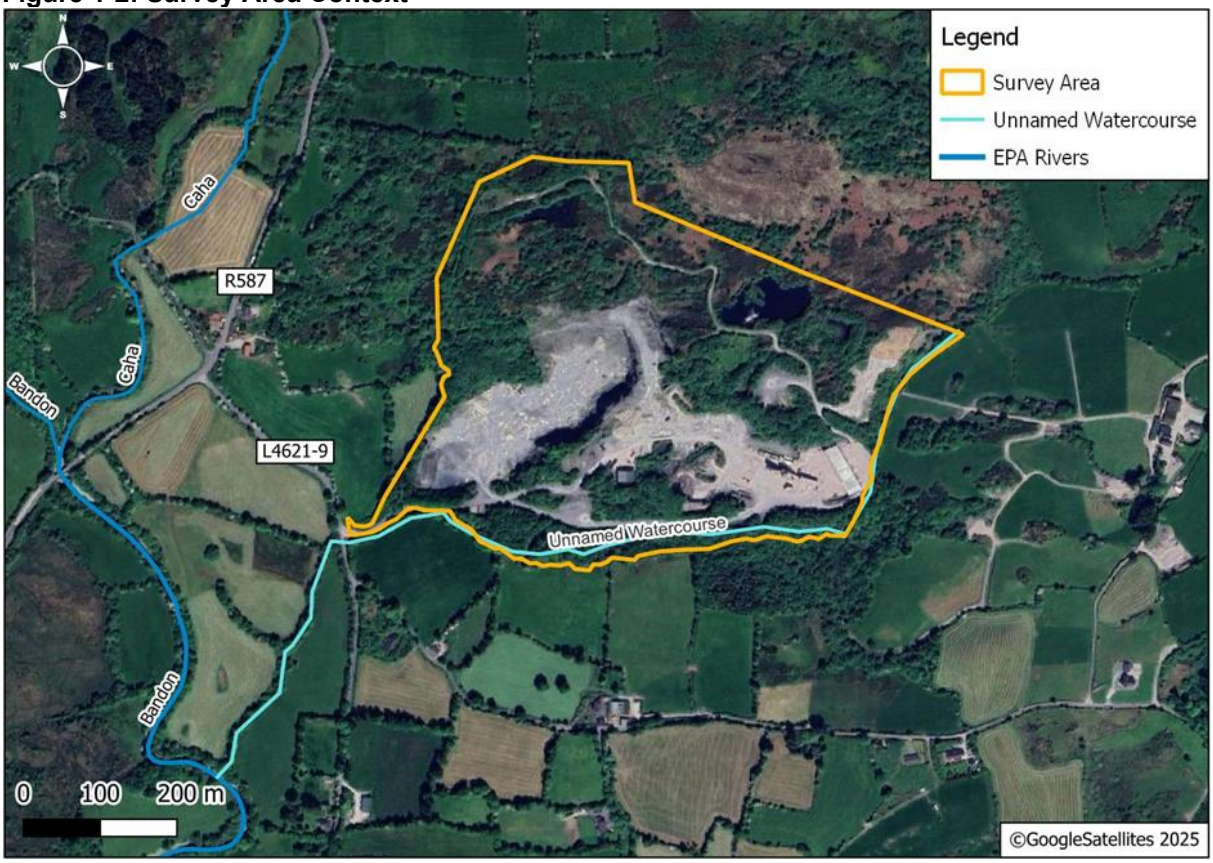
The former extraction area (1990 - 2014) is situated in the southwest of the overall landholding. The northern part of the landholding has not been quarried, but portions of it were used for storing crushed product, as a settling pond and for backfilling.

In the southeast of the landholding is a tarmacadam production plant and buildings used for administration, welfare and storage purposes. Development in this part of the Survey Area was granted planning permission under Cork County Council ('CCC') Ref. 98/294, inclusive of the following:

- Prefabricated office building / toilet / canteen;
- Laboratory;
- Mixing plan;
- Storage silos;
- Bins for plant;
- Covered aggregate storage bays;
- Storage shed;
- Bitumen tanks;
- Well / pumphouse;
- Weighbridge; and,
- Car parking area for staff and visitors.

The quarry site also contains a network of internal roads which extend across the wider landholding.

Figure 1-2: Survey Area Context



1.5 Legislation Relevant to Amphibians

There are three native amphibians in Ireland: the Common Frog (*Rana temporaria)*, the Natterjack Toad (*Epidalea calamita)* and the Smooth Newt (*Lissotriton vulgaris)*. The smooth newt is the sole native newt species found in Ireland.

All three of these native amphibians are European protected species and are subject to a regime of strict legal protection in Ireland. These amphibians are protected under Annex V and Annex IV of the EC Habitats Directive (European Council 1992).

Furthermore, these amphibians are protected under national legislation, the Wildlife Act 1976 and Wildlife (Amendment Act, 2000).

Under this legislation, it is an offence to:

a) Intentionally kill, injure or take (handle) any protected wild animal;

b) Intentionally interfere with or destroy the breeding place or resting place of any protected wild animal;

c) Intentionally or recklessly damage, destroy or obstruct access to any structure or place used for shelter or protection by any protected wild animal; and,

d) Possess or control any live or dead specimen or anything derived from a protected species.

The legislation applies to all life stages of amphibians. The Natural Parks and Wildlife Service can issue licences for amphibians 'in respect of development' to permit otherwise unlawful activities (identified above) to take place.

1.6 Purpose of the Survey Work

The implication of this legislation is that the development needs to take account of potential effects on amphibians that may have occurred and could occur as part of the remedial works. In areas where suitable habitat exists, and in the absence of contemporary baseline data existing for the species, survey work is necessary to establish whether amphibians are likely to be present and to estimate the size of the local population.

Given the presence of suitable water bodies at the Survey Area, records of amphibians within the Survey Area and the lack of contemporary baseline survey data, survey work was undertaken.

2 METHODOLOGY

The methodologies used to establish the presence or potential presence of amphibians and potentially suitable habitat are summarised below.

2.1 Desk Studies

A desk-based review of information sources was completed, which included the following:

- Review of aerial maps of the Survey Area and the surrounding area;
- The National Biodiversity Data Centre ('NBDC') website was consulted with regard to species distribution [1];
- The Environmental Protection Agency ('EPA') website was also consulted to obtain details about watercourses in the vicinity of the Site.

2.2 Field Surveys

The Survey Area was initially assessed for its suitability to support amphibians on 9th January 2023. This included assessment of its potential to provide sheltering, foraging and breeding habitat for amphibians in line with the National Road Authority ('NRA'), now Transport Infrastructure Ireland ('TII'), '*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes,*' [2]. These habitats include waterbodies suitable for egg-laying and terrestrial habitats comprising open areas with mixed-height vegetation such as heathland, rough grassland, open scrub or waterbody margins. Suitable well-drained and frost-free areas are needed to enable amphibians to survive the winter.

The initial Survey Area assessment identified the presence of waterbodies on-site suitable for amphibians, along with suitable terrestrial habitat. Amphibian surveys were conducted on the ponds identified by Virdus Consulting during the on-site hydrological assessments.

Amphibian surveys were undertaken on:

- 6th June 2023;
- 14th April 2025; and,
- 6th May 2025.

The surveys aimed to confirm the presence / absence of amphibians within the waterbodies in the Survey Area.

2.2.1 Habitat Suitability Index

A visit to the Survey Area in daylight on 14th April 2025 allowed the calculation of a Habitat Suitability Index ('HSI').

The HSI establishes the suitability of a waterbody to support the great crested newt and was developed [3]. The HSI incorporates ten suitability indices, all of which are factors known to affect this species, such as pond location, size of pond, years when pond dries out, water quality, suitability of terrestrial habitat, connectivity to other ponds and presence of water fowl and fish [4].

The great crested newt HSI was used in this report, as no equivalent index currently exists for the smooth newt. However, both species have the same habitat requirements.

The HSI is a numerical index between 0 and 1. Values close to 0 indicate unsuitable habitat, and 1 represents optimal habitat. Refer to Table 2-1, Categorisation of HSI Score.

Table 2-1: Categorisation of HSI Score

HSI Score	Pond Suitability
< 0.50	Poor
0.50 – 0.59	Below average
0.60 – 0.69	Average
0.70 – 0.79	Good
> 0.80	Excellent

2.2.2 Presence / Absence Surveys

The presence / absence surveys were carried out on the identified ponds within the Survey Area. These included:

- Refugia Search

A refugia search was carried out on the terrestrial area near the ponds being surveyed. This included searching amongst old debris, logs, under rocks and through vegetated areas.

- Egg search

A systematic search through submerged vegetation for egg wraps was undertaken. The inspection took place in daylight hours. If smooth newt egg wraps were found, the search was ended to avoid further disturbance.

- Netting

The Surveyors, using a long-handled dip net, walked the perimeter of the waterbody (where accessible) and swept the margins for newts. If a newt was caught, netting was ceased immediately due to the disruptive nature of this activity.

- Torch-light surveying

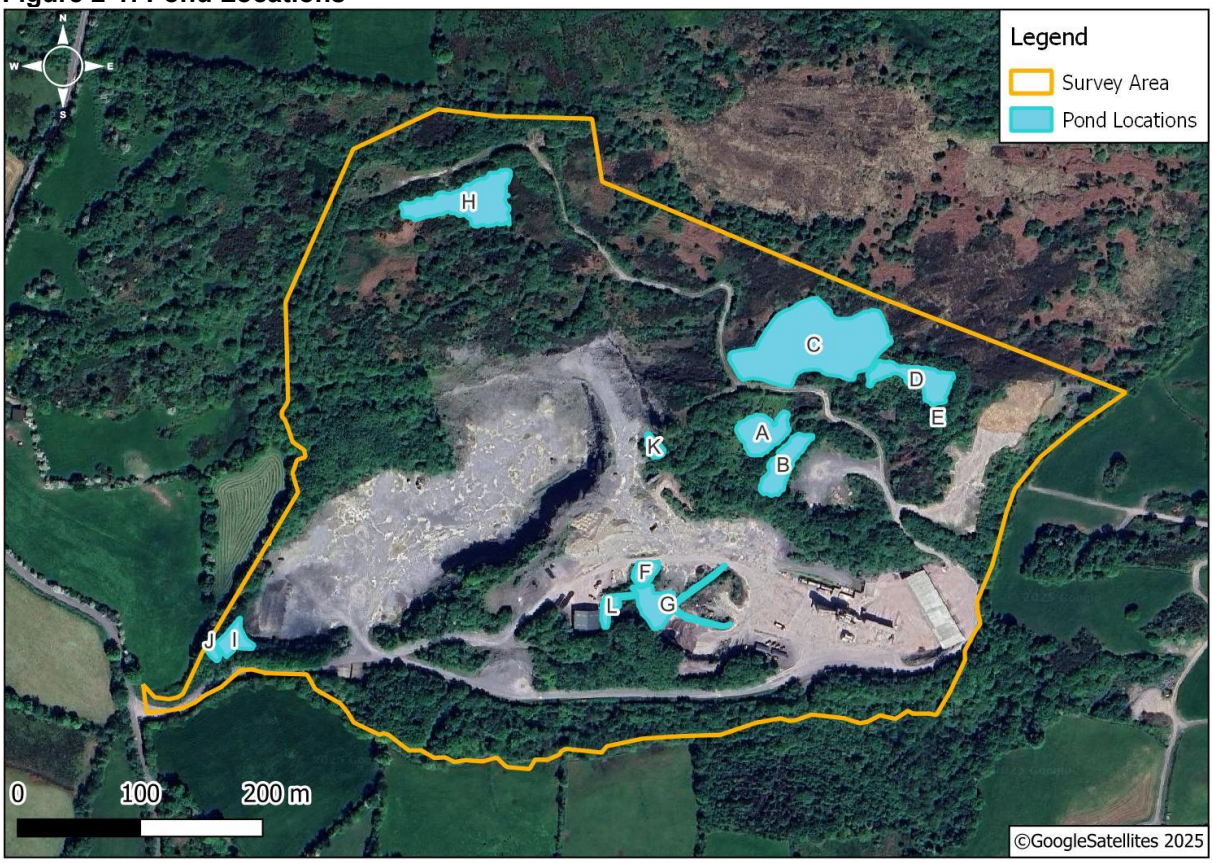
Torching was used to determine the presence or absence of newts and to estimate the population. A high-powered torch (1 million candle power) was used around the margins of the waterbody to detect newt activity after dusk.

These methodologies are in line with the following guidance:

- NRA, now TII, '*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*,' [2];
- Joint Nature Conservation Committee ('JNCC'), '*Common Standards Monitoring Guidance*,' [5];
- JNCC '*Herpetofauna Worker's Manual*' [6]; and,
- Froglife, '*Surveying for Amphibians*' [7].

The locations of the ponds are shown in Figure 2-1.

Figure 2-1: Pond Locations



2.3 Survey Constraints

Ponds D and E were not accessible due to dense vegetation intervening. Ponds A and B were identified as areas of wet grassland and did not have suitable pools of water. Pond K was dried up and did not exist. Pond C was surveyed from the accessible areas near the access track. The northern, eastern and southern boundaries were not accessible due to dense vegetation. The northern section of Pond H was surveyed along the edge. The surrounding areas were not accessible due to dense vegetation.

3 RECEIVING RESULTS

3.1 Desk Study

3.1.1 National Biodiversity Data Centre

The NDBC records were checked for amphibian species recorded in the last 10 years within 2km of the Survey Area [1]. The NBDC records were checked on 9th December 2025 for the following grids: W25L, W25G, W25H, W25I, W25M, W25N, W25R, W25S and W25T.

The parameter of 10 years was chosen to allow for habitat adaptation and modification; it is considered that any records over ten years old are not representative of the current distribution of species populations.

There were no records of amphibians within the last 10 years at the time of writing this report.

3.2 Field Surveys

3.2.1 HIS Results

HSI establishes the suitability of a waterbody to support smooth newt, based on a set of criteria as detailed in Section 2.2.2. Table 3-1 below presents the results of the HSI of 14 ponds surveyed.

Table 3-1: Habitat Suitability Index Results

Pond Name		**PA***	**PB***	**PC**	**PD****	**PE****	**PF**	**PG**	**PH**	**PI**	**PJ**	**PK**	**PL**
SI No	SI Description	SI Value	SI Value	SI Value	SI Value	SI Value	SI Value	SI Value	SI Value	SI Value	SI Value	SI Value	SI Value
1	Geographic location	1	1	1	1	1	1	1	1	1	1	1	1
2	Pond area	0.955	0.97	0.8	0.94	0.2	0.6	0.94	0.8	0.8	0.1	0.35	0.6
3	Pond permanence	n/a	n/a	0.9	n/a	n/a	0.9	0.9	0.9	n/a	n/a	n/a	0.9
4	Water quality	n/a	n/a	0.33	n/a	n/a	0.67	0.67	0.33	n/a	n/a	n/a	0.33
5	Shade	n/a	n/a	1	n/a	n/a	1	1	1	n/a	n/a	n/a	0.2
6	Waterfowl effect	n/a	n/a	0.67	n/a	n/a	1	1	1	n/a	n/a	n/a	1
7	Fish	n/a	n/a	0.67	n/a	n/a	1	1	1	n/a	n/a	n/a	1
8	Pond Count	n/a	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
9	Terrestrial habitat	n/a	n/a	0.33	n/a	n/a	0.67	0.67	0.33	n/a	n/a	n/a	0.33
10	Macrophyte cover	n/a	n/a	0.45	n/a	n/a	1	0.5	0.4	n/a	n/a	n/a	0.5
Pond Suitability		**n/a**	**n/a**	**0.649**	**n/a**	**n/a**	**0.85287**	**0.832**	**0.695**	n/a	n/a	n/a	**0.588**
				Average			**Excellent**	**Excellent**	**Average**				**Below Average**

**The habitat suitability index for this pond count be calculated as it was dried up.*

***The habitat suitability index of this pond could not be calculated as the pond was inaccessible.*

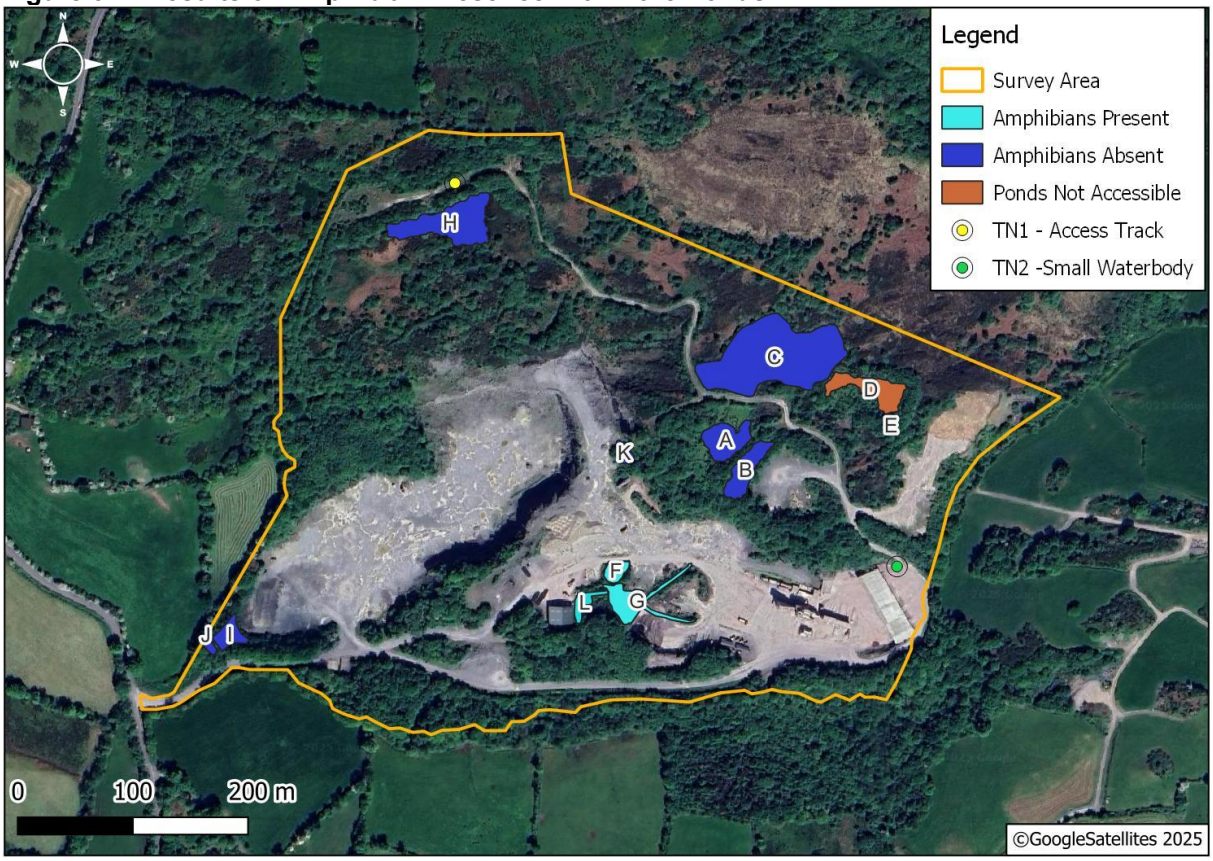
3.2.2 Amphibian Survey Results

There are 12 waterbodies located in the Survey Area according to the Hydrology and Hydrogeology Chapter of the rEIAR. Refer to Table 3-2 for descriptions of the waterbodies on-site and Figure 3-1 for the locations of the recorded amphibians.

Table 3-2: Pond Descriptions

Pond	Description
A	Pond A is located in the central part of the Survey Area, which used to contain the main holding for silty wash water. Pond A has since developed into a species-rich wet grassland. The pond substrate consisted of a silty base with moss. Notably, a minimum of 29 flowering individuals of Irish marsh orchid were recorded throughout this habitat.
B	Pond B is located adjacent to Pond A. This pond was used as an overflow for Pond A. This pond has developed into a marsh. The substrate of the marsh consists of a silty base.
C	Pond C is the largest pond on-site, located in the northeast of the Survey Area. It was surface water storage pond and has developed into a dystrophic pond. Aquatic vegetation is present along the edges of this pond. The substrate of the pond consisted of silt and bedrock.
D	Pond D is surface water pond and has developed into a dystrophic pond. Pond D is located adjacent to Pond C. This pond was not accessible during the aquatic surveys due to the dense vegetation surrounding the pond.
E	Same as Pond D.
F	Pond F holds runoff from the lower central area of the Survey Area, and the water is used for cooling in the production of tarmac-coated chips and the mastic bitumen blocks. Wetland vegetation was present throughout the pond, with a small percentage reaching the surface of the water. The substrate of this pond was silt and clay.
G	Pond G holds runoff from the lower central area of the Survey Area, and the water is used for cooling in the production of tarmac-coated chips and the mastic bitumen blocks. Wetland vegetation reaching the surface of the water occupied ca. 70% of the pond. The substrate of this pond was silt and clay.
H	Pond H is a dystrophic pond located in the northwestern area of the Survey Area. The substrate of the pond consists of rock, gravel and bedrock. The pond is surrounded by exposed rock, wet grassland and scrub / immature woodland. Aquatic vegetation borders the perimeter of the pond.
I	Pond I is located in the southwest of the Survey Area. This pond consisted of 80% vegetation with shallow water present throughout the vegetation. The substrate of the pond consisted of silt, clay and foliage.
J	Same and Pond I.
K	There was no surface water present at Pond K. Pond K was previously used as a wash plant for the quarry, which was dry at the time of the surveys.
L	Pond L is a settlement pond located in the central region of the Survey Area. The substrate of the pond consisted of silt, clay and leaf foliage. Vegetation was present throughout the pond.

Figure 3-1: Results of Amphibian Presence within the Ponds



3.2.3 Amphibian Present / Absence Survey

Table 3-3 below summarises the findings of this survey.

The results for visual, torching and netting are broken down into the following:

- M = Male;
- F = Female;
- J = Juvenile;
- L = Larva (Tadpole / Newt Eft); and,
- U = Unsexed Adult.

Table 3-3: Amphibian Presence / Absence Survey Results

Pond	Date	Air Temp (°C)	Common Frog						Smooth Newt					
			Egg Search	Visual, Torching and Netting					Egg Search	Visual, Torching and Netting				
				M	F	J	L	U		M	F	J	L	U
A	06/06/2023	13	None	None					None	None				
	14/04/2025	11	None	None					None	None				
	06/05/2025	11	None	None					None	None				
B	06/06/2023	13	None	None					None	None				
	14/04/2025	11	None	None					None	None				
	06/05/2025	11	None	None					None	None				
C	06/06/2023	13	None	None					None	None				
	14/04/2025	11	None	None					None	None				
	06/05/2025	11	None	None					None	None				
D	06/06/2023	13	Not Accessible											
	14/04/2025	11	Not Accessible											
	06/05/2025	11	Not Accessible											
E	06/06/2023	13	Not Accessible											
	14/04/2025	11	Not Accessible											
	06/05/2025	11	Not Accessible											

Pond	Date	Air Temp (°C)	Common Frog						Smooth Newt					
			Egg Search	Visual, Torching and Netting					Egg Search	Visual, Torching and Netting				
				M	F	J	L	U		M	F	J	L	U
F	06/06/2023	13	None	None					None	None				
	14/04/2025	11	None	0	0	0	High no's	0	None	2	1	0	0	1
	06/05/2025	11	None	0		0	50+	0	None	12	8	0	0	4
G	06/06/2023	13	None	None					None	2	0	3	0	0
	14/04/2025	11	None	None					None	None				
	06/05/2025	11	None	None					None	0	0	0	0	10
H	06/06/2023	13	None	None					None	None				
	14/04/2025	11	None	None					None	None				
	06/05/2025	11	None	None					None	None				
I	06/06/2023	13	None	None					None	None				
	14/04/2025	11	None	None					None	None				
	06/05/2025	11	None	None					None	None				
J	06/06/2023	13	None	None					None	None				
	14/04/2025	11	None	None					None	None				
	06/05/2025	11	None	None					None	None				

Pond	Date	Air Temp (°C)	Common Frog						Smooth Newt					
			Egg Search	Visual, Torching and Netting					Egg Search	Visual, Torching and Netting				
				M	F	J	L	U		M	F	J	L	U
K	06/06/2023	13	None	None					None	None				
	14/04/2025	11	None	None					None	None				
	06/05/2025	11	None	None					None	None				
L	06/06/2023	13	None	None					None	None				
	14/04/2025	11	None	None					None	5	4	0	0	1
	06/05/2025	11	None	None					None	2	1	0	0	12

In addition to the ponds surveyed, amphibians were also found in two areas of the Survey Area during the surveys in 2025.

The access tracks in the north of the Survey Area had puddles of water. One adult smooth newt in its terrestrial life stage was found along with ca. ten tadpoles on 6th May 2025 (See TN1 in Figure 3-1).

A small waterbody (ca. 2m^2) formed from surface water was found in the eastern section of the Survey Area along the corner of the access track. This waterbody had one adult frog present and ca. 60 tadpoles nearing the juvenile phase with back legs visible and some reaching the surface of the water coming up for air (See TN2 in Figure 3-1).

3.3 Summary of Results

Tadpoles were recorded in Pond F and along the access tracks in the north of the Survey Area (TN1) and in the small waterbody in the east of the Survey Area (TN2). An adult frog was identified in this small waterbody.

Smooth newts were recorded in Ponds F, G and L and in the access track in the north of the Survey Area (TN1).

Table 3-4 presents a summary of the results and a population size class distribution estimation for smooth newts. The population size class is defined as follows:

- Small population: one to ten individuals;
- Medium population: 11-100 individuals;
- High population: 100+ individuals; and,
- The size class is based on the highest survey count over the survey period.

Table 3-4: Summary of Survey Results and Newt Population Estimation

Pond ID	Common Frog	Smooth Newt population estimate
A	0	0
B	0	0
C	0	0
D	Not Accessible	
E	Not Accessible	
F	Present	Medium
G	0	Small
H	0	0
I	0	0
J	0	0
K	0	0
L	0	Medium
TN1	Present	Small
TN2	Present	0

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APPENDIX 14.2
BANDON RIVER SURVEY

VOLUME III
APPENDICES

FEBRUARY 2026

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Freshwater Pearl Mussel (*Margaritifera margaritifera*) Survey of the River Bandon at Ardcahan, Dunmanway, Co. Cork.

September 2024

Due to the sensitive nature of data concerning the locations of freshwater pearl mussels, distribution of this report should be restricted and not released to the public.

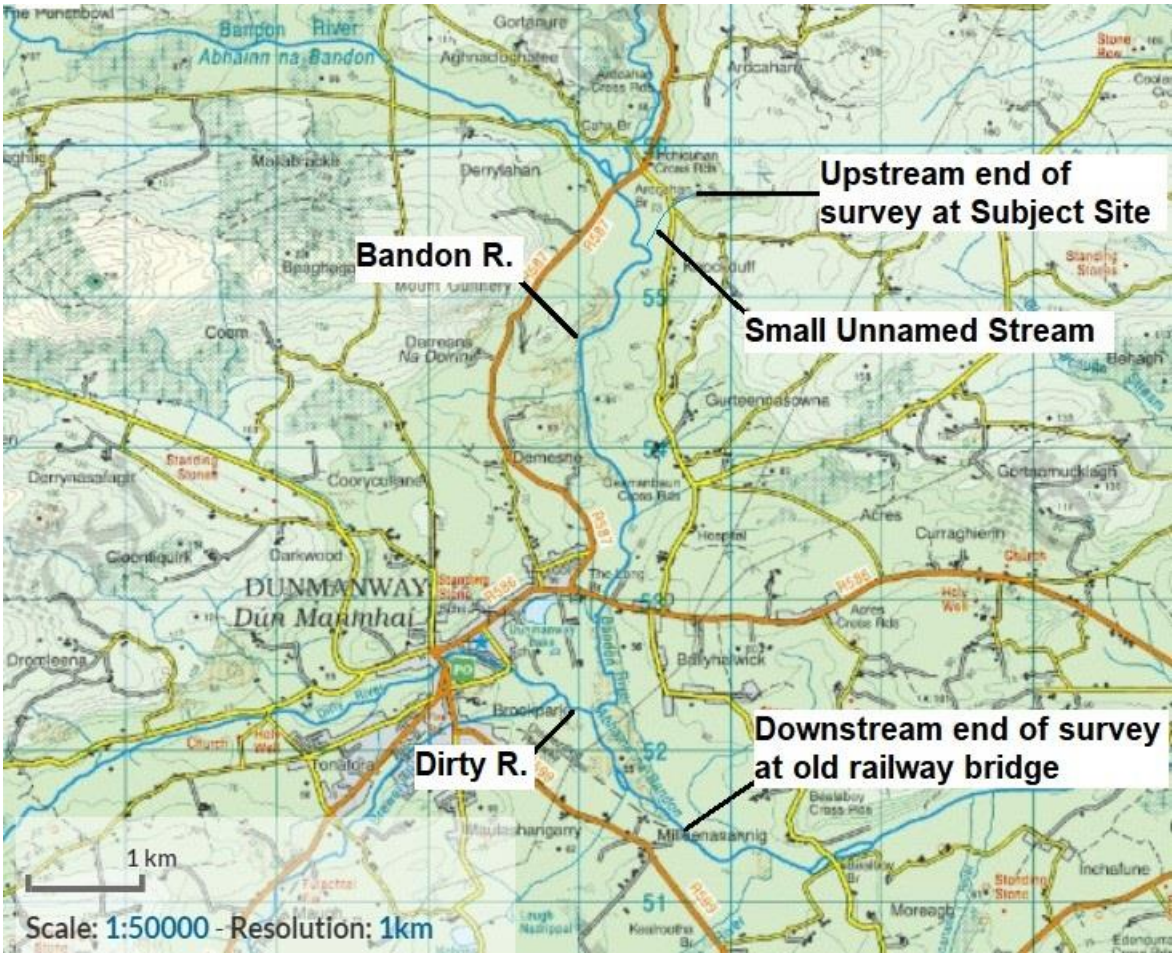
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1. INTRODUCTION

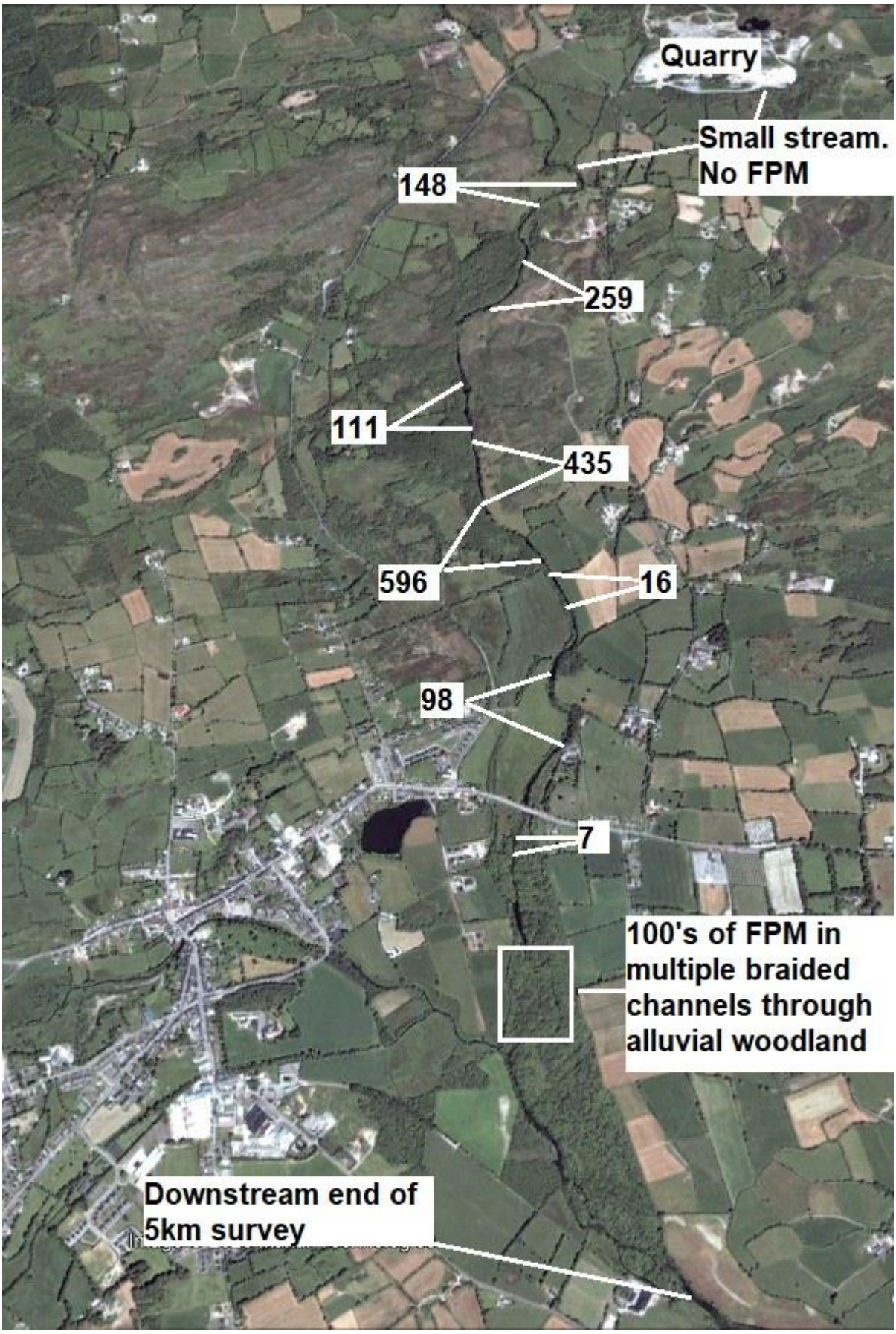
In June 2023, Sweeney Consultancy was commissioned by Malone O'Regan Environmental to undertake an aquatic ecological assessment, including a survey of Freshwater Pearl Mussels (*Margaritifera margaritifera*) downstream of a quarry at Ardcahan, Dunmanway, Co. Cork. As the aquatic zone of potentially highest impact is from the location of a proposed development to 5km downstream (Escauriaza *et. al.*, 2017), the section of watercourse assessed was from an unnamed small stream adjacent to the quarry site to the old railway bridge downstream of Dunmanway (Figure 1).

Figure 1. June 2023 Survey Location Map



The distance from the confluence of the stream from the quarry with the River Bandon (ITM 524406 555396) to the first Freshwater Pearl Mussel (FPM) downstream was c. 80m. From this point, at ITM 524438 655304 to ITM 524423 655268, 148 FPM were counted. (Figure 2). As the proposed development at the quarry site was delayed, Sweeney Consultancy was commissioned to re-survey this part of the River Bandon FPM population nearest the quarry.

Figure 2. Freshwater Pearl Mussel Locations and Numbers June 2023



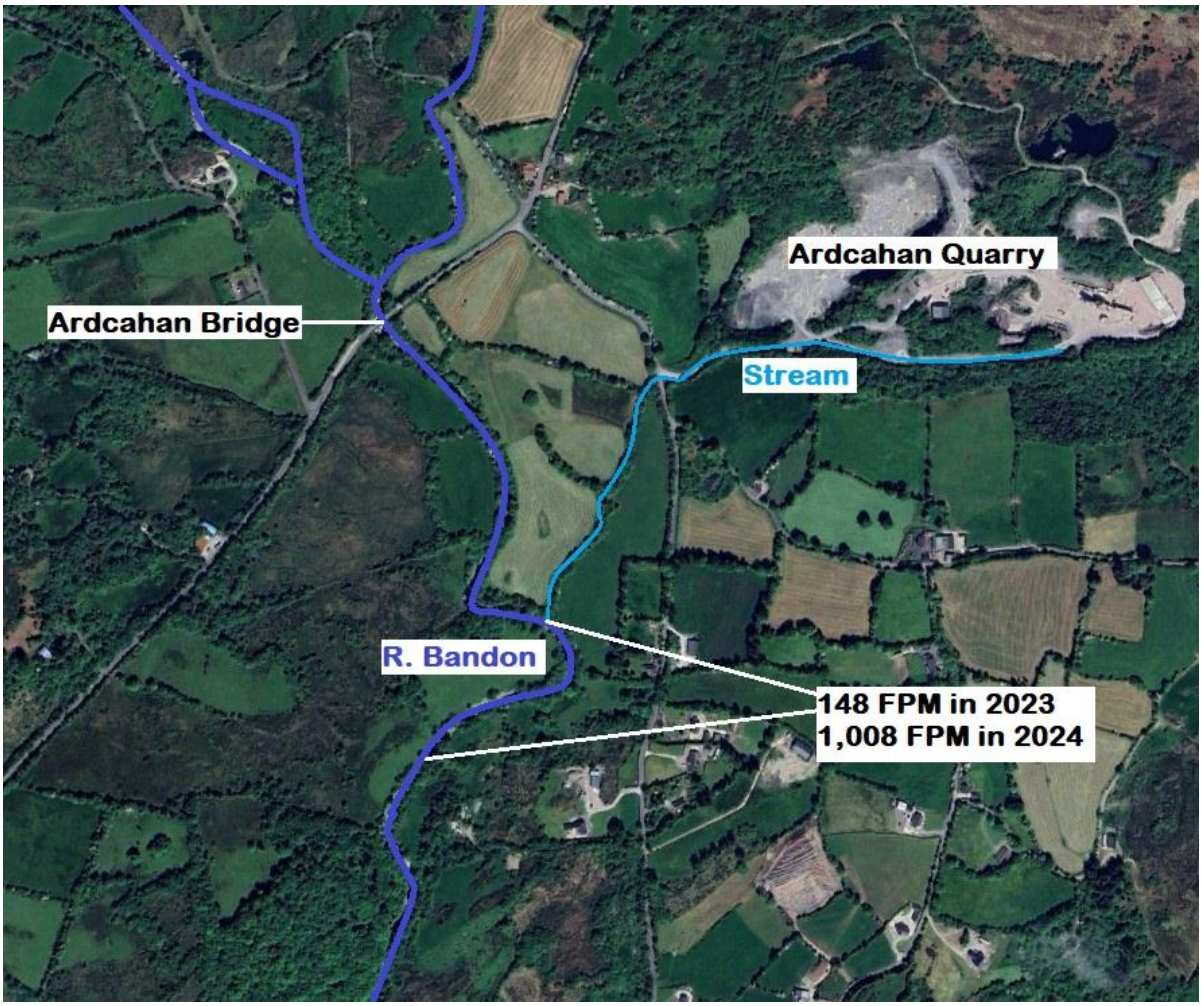
2. METHODOLOGY

A field survey was carried out on September 10th, 2024 by Pascal Sweeney (Licence No. C09/2024), and Henry Tennyson (Licence No. C196/2024). The survey methodology used was in accordance with the guidelines given in Irish Wildlife Manual No. 12, NPWS (Anon., 2004). Grid references were recorded using a hand-held Garmin GPS 72H.

3. RESULTS

1,008 live FPM were found in the section of the River Bandon surveyed (Figure 3). This included some very close to the confluence of the small stream from the quarry.

Figure 3. Freshwater Pearl Mussels close to Ardcahan Quarry



Information on the locations of freshwater pearl mussels gathered in this survey will be given to National Parks and Wildlife Service, as required by the Licence Conditions.

4. FURTHER INVESTIGATIONS & DISCUSSION

As an increased count of FPM from148 in 2023 to 1,008 in 2024 in a relatively short section of river, is very far outside the normal margin of error for a survey of this kind, some further investigations were undertaken. In 2022, Sweeney Consultancy had been commissioned by Triturus Ltd to survey FPM bedded under Ardcahan Bridge, with a view to an application to re-locate them, in order to facilitate bridge repair and flood relief works. Fourteen FPM were recorded under the bridge and high numbers were observed within a short distance downstream. No licensed re-location of FPM followed.

On 10/09/2024, Pascal Sweeney and Henry Tennyson checked for FPM under and immediately downstream of Ardcahan Bridge. None were observed. It would appear that this absence of mussels at Ardcahan Bridge could be linked to the substantial increase found downstream of the stream from the quarry.

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APPENDIX 14.3
BAT REPORT

VOLUME III
APPENDICES

FEBRUARY 2026

February 2026

Bat Report

Ardcahan Quarry, Dunmanway, Co. Cork

Murray Brothers Tarmacadam Ltd

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Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	18/02/26	Bat Report	Final	SL	HT	DH

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Bat Report

Ardcahan Quarry, Dunmanway, Co. Cork

Murray Brothers Tarmacadam Ltd

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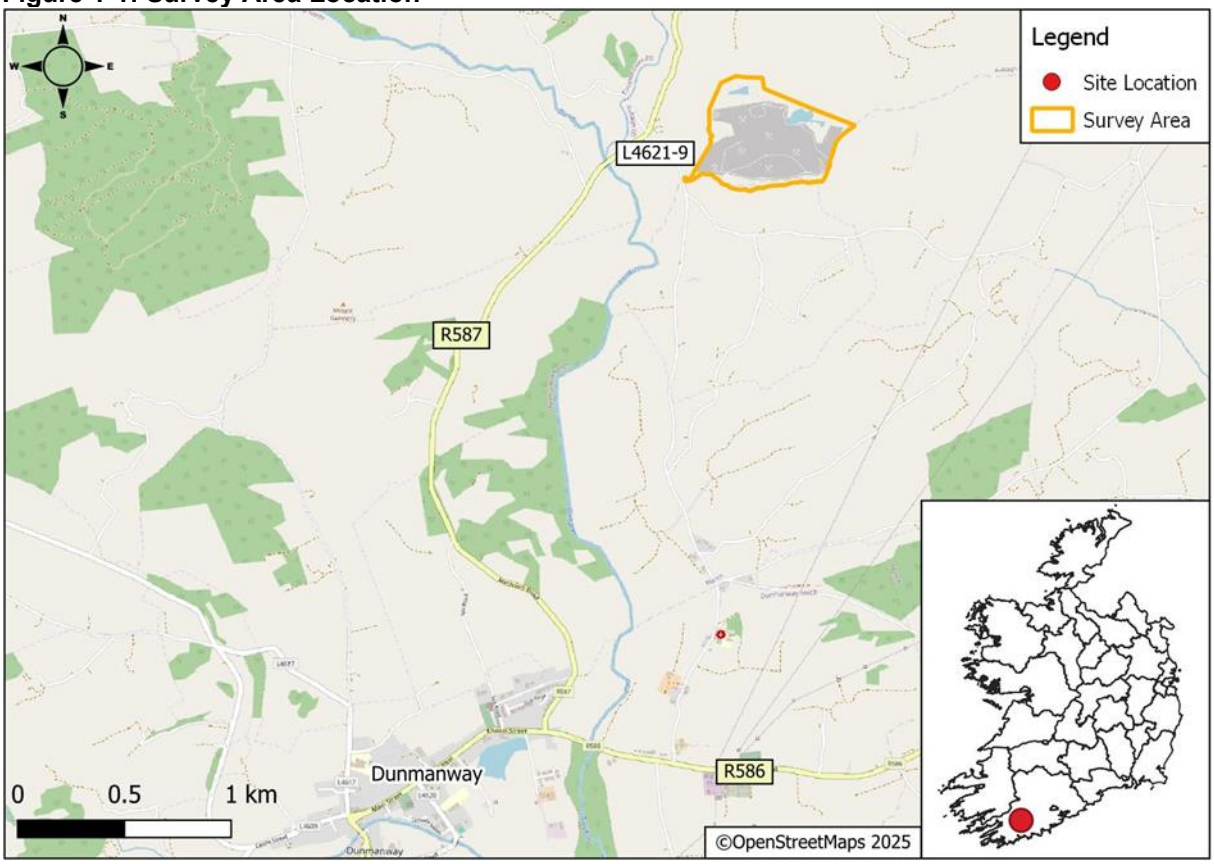
1 INTRODUCTION

This Bat Report has been prepared by Malone O'Regan Environmental ('MOR Environmental') on behalf of Murray Brothers Tarmacadam Ltd ('the Applicant'), to present the findings of bat surveys undertaken within Ardcahan Quarry, Dunmanway, Co. Cork ('the Survey Area') (ITM OS Reference W 25061 55898). The Survey Area consists of the existing operational Ardcahan Quarry and site infrastructure. The habitats within the Survey Area comprised active quarry, scrub, immature woodland, agricultural and amenity grassland, heathland, built areas and hedgerow / treelines.

Bat surveys were undertaken within the Survey Area from 2023 – 2025. This Bat Report presents the findings of the desk-based and field-based surveys undertaken within the Survey Area during this time.

The location of the Survey Area is shown in Figure 1-1.

Figure 1-1: Survey Area Location



1.1 Relevant Legislation

All Irish bat species are protected by law under the Wildlife Act 2000 (as amended) and its subsequent amendments. They are afforded full protection under this act, which makes it a criminal offence for anyone without a licence to:

- Kill, injure or handle a bat;
- Possess a bat (whether alive or dead);
- Disturb a roosting bat; and,
- Damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

In addition to domestic legislation, bats are also protected under the EU Habitats Directive (92/43/EEC). All Irish bats are listed in Annex IV of the Habitats Directive, and the lesser horseshoe bat is further listed under Annex II, which make it an offence to:

- Deliberately capture, injure or kill any bat; or,
- Deliberately disturb a bat, in particular any disturbance which is likely;
    (a) To impair their ability:
        (i) To survive, to breed or reproduce, or to rear or nurture their young; or,
        (ii) To hibernate or migrate.
    (b) To affect significantly the local distribution or abundance of the bat species; or,
- Damage or destroy a breeding site or resting place of a bat.

Therefore, the destruction, alteration or evacuation of a known bat roost is a notifiable action under current legislation, and a derogation license must be obtained from the National Parks and Wildlife Service ('NPWS') before works can commence.

Furthermore, it should also be noted that any works interfering with bats and especially their roosts, including, for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a license to derogate from Regulation 23 of the Habitats Regulations 1997 (which transposed the EU Habitats Directive into Irish law) issued by NPWS.

1.2 Statement of Authority

The bat inspection survey and subsequent report were undertaken and prepared under the guidance of the following MOR Environmental personnel: Ms Stephanie Lonergan, Mr Henry Tennyson and Mr. Dyfrig Hubble.

Stephanie Lonergan, Environmental Consultant, has a B.A. (Mod) (Hons) in Environmental Science. Stephanie is a qualifying member of the Chartered Institute of Ecology and Environmental Management ('CIEEM') with a particular interest in bat ecology and conservation. Stephanie has completed courses on bat ecology, identification, handling, biometrics and mitigation with CIEEM and Bat Conservation Ireland. Stephanie has undertaken training run by Wildlife Acoustics for analysis of bat calls in Kaleidoscope Pro Software and regularly uses this programme within her role at MOR Environmental. Stephanie also holds a certificate of Bat Acoustic Analysis from Batability. Stephanie has experience undertaking bat surveys and tree / building assessments and regularly attends events held by local bat groups.

This report was reviewed and approved by Mr. Dyfrig Hubble, Associate Director – Ecologist. Dyfrig has a B.Sc. (Hons) in Tropical Environmental Science and an M.Sc. in Environmental Forestry. Dyfrig is a full member CIEEM. Dyfrig has over 18 years' experience working in the ecological consultancy sector, including habitat appraisals and specialist species-specific surveys. Dyfrig has extensive experience in undertaking a variety of bat surveys, including dawn / dusk surveys, transects, static monitoring, harp trapping, Lesser Horseshoe roost counts. Dyfrig has also worked on numerous projects that have required supervision of building demolition and tree removal works under licence. These projects have included work both in the UK and Ireland.

1.3 Species Background

Bats in Ireland feed exclusively on insects, and in the summer months (May – September) they generally emerge from their roosts around sunset to feed. Bats are known to use a number of different foraging sites on the same night and move between them to locate areas

of high insect concentrations. They are also known to exhibit site loyalty and will return to the same foraging sites night after night [1].

There are eleven recorded bat species in Ireland, nine of which are considered resident and two which are considered vagrants (Please see Table 1-1 below).

Table 1-1: Status of Irish Bat Species [2]

Bat Species	*Latin Name*	Irish status	European Status
Resident Bat Species			
Brown Long-eared Bat	*Plecotus auritus*	Least Concern	Least Concern
Common Pipistrelle	*Pipistrellus pipistrellus*	Least Concern	Least Concern
Daubenton's Bat	*Myotis daubentonii*	Least Concern	Least Concern
Leisler's Bat	*Nyctalus leisleri*	Least Concern	Least Concern
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	Least Concern	Near Threatened
Nathusius' Pipistrelle	*Pipistrellus nathusii*	Least Concern	Least Concern
Natterer's Bat	*Myotis nattereri*	Least Concern	Least Concern
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Least Concern	Least Concern
Whiskered Bat	*Myotis mystacinus*	Least Concern	Least Concern
Vagrants			
Brandt's Bat	*Myotis brandtii*	Data Deficient	Least Concern
Greater Horseshoe Bat	*Rhinolophus ferrumequinum*	Data Deficient	Near Threatened

1.4 Types of Bat Roosts

Bats were originally cave and tree-dwelling animals, but many now use buildings to roost within. Buildings are highly important as roosting sites for all Irish bat species, as they use buildings for all roost types. Most significant in terms of roosts in buildings are maternity roosts, but cellars and attics can serve as hibernation sites for bats. Roosts within buildings can far exceed the numbers encountered in trees, bridges, caves or cliffs and roosts of over 1,000 bats have been recorded in buildings [3].

Bats are social animals, and most species congregate in large colonies during the late spring / summer. These colonies consist mostly of females, with some juvenile males from the previous year. Male bats normally roost individually or in small groups, meeting up with the females in the late autumn, when it is time to mate. In summer, bats seek warm, dry buildings in which they can give birth and suckle their young. In winter, they seek out places with a constant low temperature and high humidity where they can become torpid and hibernate during adverse weather conditions. However, bats do not hibernate continuously during winter and will awake and hunt during mild nights when there are insects available, and it is energetically advantageous to forage [4].

One purpose of daytime tree or building inspections is to determine the potential of bat roosts within the survey area. Due to the transient nature of bats and their seasonal life cycle, there are a number of different types of bat roosts. Where possible, one of the objectives of the surveys is to be able to identify the types of roosts present, if any.

Table 1-2 below shows an excerpt of the definitions of the types of bat roosts taken from the Bat Conservation Trust's '*Bat Surveys for Professional Ecologists - Good Practice Guidelines* (4th ed.) [4]. It should be noted that there is no equivalent Irish guidance and that this guidance is applicable to the bat roost types found in Ireland. Additionally, all bat species found within Ireland are also present in the UK, so Irish bat species have been fully assessed as part of this Bat Conservation Trust guidance.

Table 1-2: Bat roost types. (definitions written by the Natural England Earned Recognition Project). [4]

Roost Type	Natural England Definition
Day Roost	A place where individual bats or small groups, rest or shelter in the day during the summer.
Night Roost	A place where bats rest or shelter in the night but are not found in the day. May be used by a single individual on occasion, or it could be used regularly by the whole colony..
Feeding Roost	A place where individual bats, or few individuals, rest or feed for short periods during the night but are not present by day.
Transitional Roost	A place used by a few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation.
Maternity Site	A place where female bats give birth and raise their young to independence. In some species males may also be present in the maternity roost.
Hibernation Site	A place where bats may be found individually or together during winter. They have a constant cool temperature and high humidity.
Satellite Roost	An alternative roost found in close proximity to the main nursery colony used by a few individuals to small groups of breeding females throughout the breeding season.

1.5 Purpose of Survey Work

The implication of these legislative policies is that the projects and Developments need to take account of the potential effects on bats. Survey work is necessary to establish whether the species are currently present in areas where suitable habitat exists and in areas where bats have previously been recorded.

The survey work also enables appropriate mitigation measures to be incorporated into the remediation works of the project and ensures that there are no adverse effects on the conservation status of the species, and also informs the assessment for potential effects that may have occurred.

2 METHODOLOGY

The methodologies used to establish the presence / potential presence of bats are summarised below.

2.1 Desk-Based Studies

A desk-based study was undertaken to identify records of bats within the Survey Area. The following sources of information were reviewed:

- Aerial mapping was reviewed to identify any habitats and features likely to be used by bats. Maps and images of the Survey Area and general landscape were examined for suitable foraging or commuting habitats, including woodlands and forestry, hedgerows, treelines, and watercourses;
- The National Parks and Wildlife Service ('NPWS') website was consulted to obtain the most up-to-date details on conservation objectives for the European sites relevant to this assessment [5];
- The National Biodiversity Data Centre ('NBDC') website was consulted with regard to bat species distributions and the bat habitat suitability index [6]; and,
- The National Bat Database of Ireland dataset on the NBDC website was consulted to investigate the nearest known roosts within the vicinity of the Survey Area [7].

2.2 Field-Based Studies

The survey design was informed by previous experience and the following publications:

- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* [3];
- *A Conservation Plan for Irish Vesper Bats* Irish Wildlife Manual No. 20 [8];
- *UK Bat Mitigation Guidelines: A guide to impact assessment, mitigation and compensation for developments affecting bats* [9]*;*
- *Bat Mitigation Guidelines for Ireland – V2*. Irish Wildlife Manuals, No. 134 [10] a publication by the NPWS; and,
- *Bat Surveys for Professional Ecologists - Good Practice Guidelines* (4th ed.). London: The Bat Conservation Trust [4].

2.2.1 Daytime Bat Walkover and Identification of Bat Habitats

The Survey Area was assessed during the daytime bat walkover survey on 9th January 2023 and during an updated assessment on 17th September 2024 in relation to potential bat roosting, foraging habitat and potential commuting routes. Bat habitats and commuting routes identified were considered in relation to the wider landscape to determine connectivity for local bat populations, and through the examination of aerial mapping.

During the updated walkover on 17th September 2024, assessment criteria for evaluating the potential suitability of the Survey Area for bats were carried out in line with the most up-to-date guidance - 'Bat Surveys for professional Ecologists: Good Practice Guidelines' [4].

Table 2-1: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of habitat features within the landscape, to be applied using professional judgement [4]

Potential Suitability	Description of Roosting habitats in structures	Description of Potential flightpaths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year	No habitat features on site likely to be used by any commuting or foraging bats at any time of

Potential Suitability	Description of Roosting habitats in structures	Description of Potential flightpaths and foraging habitats
	(i.e. a complete absence of crevice/suitable shelter at all ground/underground levels).	the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines or generate/shelter insect populations available to foraging bats).
Negligible[1]	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flightpaths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions[2] 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 and not a classic cool/stable hibernation site, but could be used by individual hibernating bats[3]).	Habitat that could be used by small numbers of bats as flightpaths, such as a gappy hedgerow or unvegetated stream, but isolated, i.e., not very well connected to the surrounding landscape by another habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats, such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure 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, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flightpaths, such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape, which is likely to be used regularly by foraging bats, such as broadleaved woodland, tree-lined watercourses and grazed parkland. The Site is close to and connected to known roosts.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roost, e.g. maternity or classic cool/stable hibernation site.	Continuous, high-quality habitat that is well connected to the wider landscape, which 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, which is likely to be used regularly by foraging bats, such as broadleaved woodland, tree-lined watercourses and grazed parkland. The Site is close to and connected to known roosts.

[1] Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).

[2] For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.

[3] Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments ([13] and [14]).Common pipistrelle swarming has been observed in the UK ([15] and [16]) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland ([17]). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.

2.2.2 Ground Level Tree Assessment

As part of the walkover, all trees within the Survey Area were assessed for the presence of features that could be utilised by roosting bats, using close-focusing binoculars and a powerful focused-beam light source. The following criteria were used:

- Presence of natural cavities, splits, cracks, loose bark and rot holes in the trunk or boughs of the tree;
- Presence of dense and woody ivy (*Hedera helix*) growth that could be used by bats for roosting;
- Evidence of bat droppings, which may also be seen as a black streak beneath holes, cracks, branches, etc;
- Presence of smooth edges with dark marks and urine stains at potential entrances to roosts;
- Adjoining habitat which are likely to be important to bats, including the river corridor, and hedge / treelines within the survey area that offer a variety of potential foraging, roosting and commuting opportunities for bats; and,
- Adjoining potential roosts / known roosts identified, as this raises the likelihood of a tree being of benefit, as bats may move roosts if a roost becomes too hot / cold.

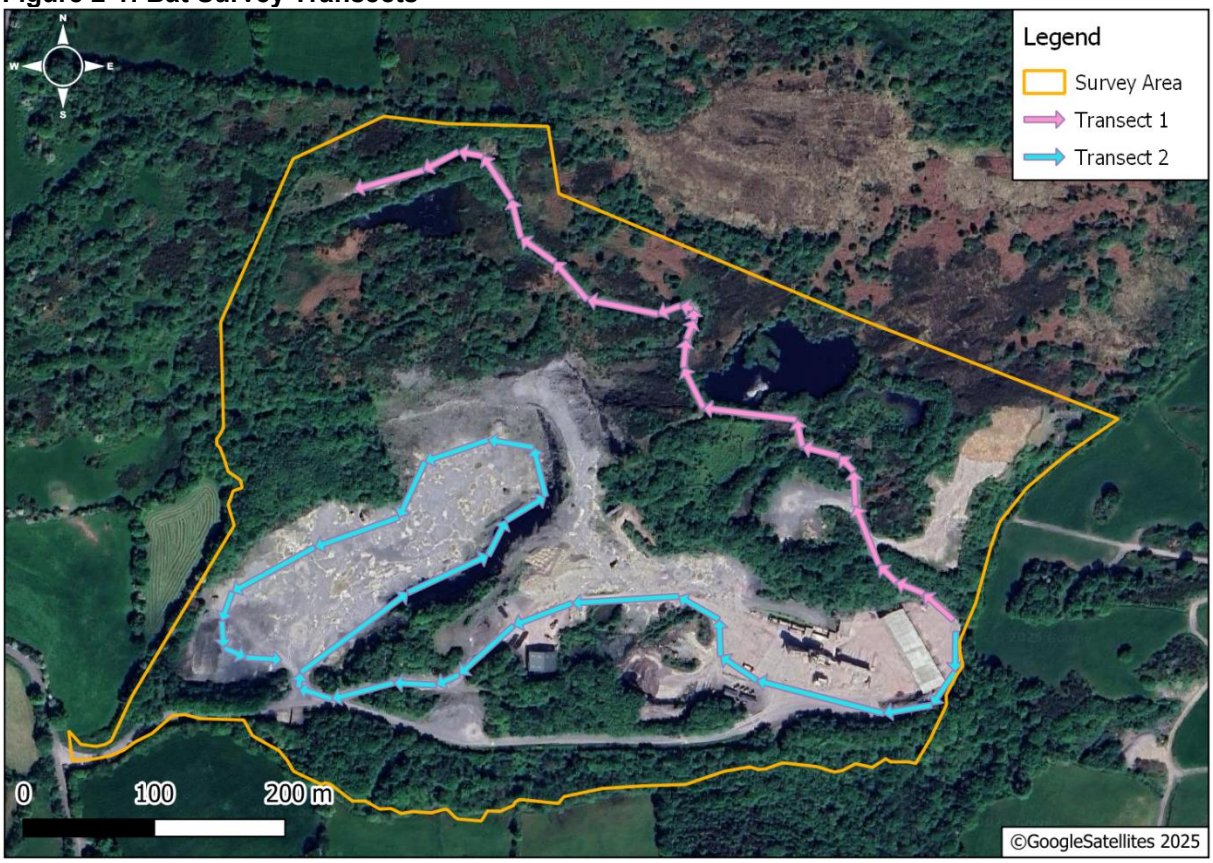
2.2.3 Dusk Nighttime Bat Walkover ('NBW') Surveys

Three dusk emergence and NBW surveys took place at the Survey Area, the first on 24th July 2023, the second on 17th September 2024 and the third on 3rd June 2025. The surveys commenced 15 minutes before sunset and ended 2 hours after sunset, therefore encompassing the typical emergence times of Irish bat species.

The NBW surveys involved walking predetermined transects (T – T1 and T2) for two hours and 15 minutes, and were designed to incorporate all treelines, linear features and other areas of the Survey Area that the daytime bat walkover survey identified as providing suitable habitats for foraging and commuting bats. The transects aimed to capture bat activity levels within the Survey Area and to determine what areas within the Survey Area, if any, were important habitats for bats. The surveyors used an Echo Meter Touch2 Pro to listen for bat calls. These bat calls were recorded using this Echo Meter Touch2 Pro and stored on the EchoMeter App. A combination of visual observation and listening to ultrasonic bat calls was used, and surveyors continuously recorded any signs of bat activity using the Echo Meter Touch2 Pro and noted any visual observations.

Two MOR Environmental Ecologists surveyed separate locations of the Survey Area; see Figure 2-1 below for full details of the locations of the transects walked during the surveys.

Figure 2-1: Bat Survey Transects



2.2.4 SM4s

Two passive bat detectors, Wildlife Acoustics Song Meter 4-BAT ('SM4s'), were placed within the Survey Area for one period of static monitoring. Figure 2-2 below shows the locations where the SM4s were placed within the Survey Area.

The SM4s were equipped with ultrasonic microphones and were left in specific locations for a specified period of time (13 nights – from 21st May 2025 to 3rd June 2025). The SM4s were used as a bat activity data logger, as there was no surveyor present. Bats which passed near enough to the SM4 unit were recorded, and their calls were stored for analysis post monitoring period. This resulted in a far greater sampling effort over a shorter period of time.

The SM4s and the ultrasonic microphones were positioned in open spaces and locked in secure boxes so there would be no interference during the monitoring period. The SM4 bat loggers used real-time recording as a technique to record bat echolocation calls, and using specific software, the bat calls were identified. It was these sonograms of the bat calls (2-D sound graphs) that were digitally stored in the SD cards within the SM4s that were then downloaded for analysis.

These results were depicted in a table detailing the number of bat passes per species / per hour / night. Each bat pass did not correlate to an individual bat but was representative of the bat activity levels within the area. For example, some species of bats, such as *Pipistrellus* species, will continuously fly around a habitat, and therefore it is likely that a series of bat passes within a similar timeframe could be the same pipistrelle bat. However, other bat species, such as Leisler's bats, tend to travel through an area quickly and therefore an individual bat pass is more indicative of the actual number of individual bats.

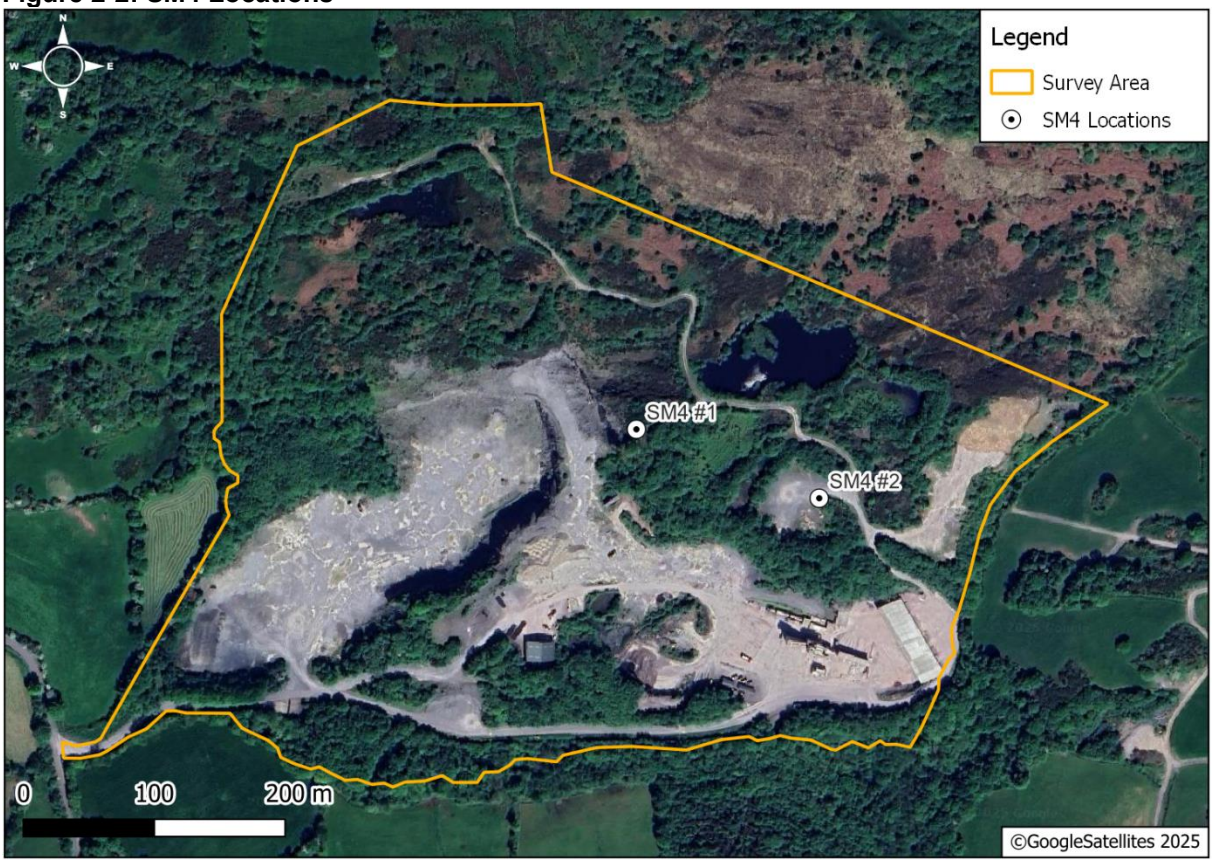
The total number of bat passes recorded per night and divided by the number of hours of recording, provides a figure for this analysis. The bat activity levels were determined as follows:

- None – 0 passes;
- Low = 1 - <10 passes per hour;
- Moderate = >10 - <50 passes per hour; and,
- High = >50 passes per hour.

All sound file data downloaded from the SM4s was analysed using Kaleidoscope Pro Software. The 'auto-ID' function was used to batch assign the top auto-ID species for each sound file. This approach allowed identification of bats to genus level for *Myotis* species, and to species level for other bats found in Ireland. Separation of *Myotis* species is complicated by the high degree of overlap between call characteristics. This software can also automatically sort sound files that contain only noise ('non-bat') from sound files that contain bat passes.

Following the batch analysis, all non-Leisler's bat calls and all non-pipistrellus (excluding Nathusius' pipistrelle) and no ID calls were manually checked by a capable bat acoustic analyst. Auto-ID calls from common pipistrelle, soprano pipistrelle and Leisler's bat were not manually checked, as it is accepted that due to the lack of complexity within these species' calls, the auto-ID function is sufficient.

Figure 2-2: SM4 Locations



2.2.5 Data Analysis

The bat recordings taken during the surveys were analysed using the software KaleidoscopePro to aid the identification of bat species present. A combination of the visual

observations taken during the survey and the number of bat passes[4] identified on the recordings was used to determine bat activity levels within the area.

All non-noise recordings taken on the bat surveys were manually checked by a capable bat acoustic analyst.

2.3 Validation of Survey Data

Bat surveys are a snapshot of the bat activity within an area at the time of surveying. It is therefore important that bat surveys comprise a number of surveys designed to provide as much information as possible on the species and levels of bats using an area. Therefore, a combination of surveys was used to determine the potential importance of the Survey Area for bats.

Best practice guidance dictates that bat surveys should be undertaken when there is no rain or wind and the temperature is above 10°C. Please see Table 2-2 below for the weather conditions on-site during the NBW surveys undertaken from 2023 – 2025, and Table 2-3 below for the weather conditions on the Site during the SM4 monitoring period in 2025.

Table 2-2: Bat Survey Metadata

Date	Survey Type	Sunset	Survey Times (Start-End)	Weather	Temperature (°C) Start - End
24/07/2023	NBW	21:38	21:23 – 23:38	Dry, light breeze	13°C -10°C
17/09/2024	NBW	19:45	19:30 – 21:45	Dry, light breeze	16°C -13°C
03/06/2025	NBW	21:46	22:03 – 23:46	Dry, light breeze	11°C – 8°C

Table 2-3: Weather Conditions during SM4 Monitoring

Date	Nighttime Rain	Nighttime Wind (km/h, high - low)	Nighttime Temperature (ºC high – low)	Bat Surveying Conditions
21/05/2025	None	20-17	17-13	Optimal
22/05/2025	None	24-17	17-10	Optimal
23/05/2025	None	24-15	15-11	Optimal
24/05/2025	Showers from 21:00 – 22:00	24-11	15-13	Moderate
25/05/2025	Showers at 01:00 & from 21:00-21:30	37-17	12-10	Suboptimal
26/05/2025	Showers at 03:00	32-9	13-8	Suboptimal

[4] It is important to acknowledge that bat calls provide a measure of bat activity rather than the number of individuals in a population. In practice, bat activity (as, for example, represented by 100 recordings) could be from 100 bats passing the detector or one bat passing 100 times [4].

Date	Nighttime Rain	Nighttime Wind (km/h, high - low)	Nighttime Temperature (ºC high – low)	Bat Surveying Conditions
27/05/2025	Light rain from 03:30 – 06:00	20-7	14-11	Moderate
28/05/2025	Light rain from 21:00 – 23:30	28-7	14-8	Suboptimal
29/05/2025	Light rain all night	35-19	14	Suboptimal
30/05/2025	Light rain from 00:00 – 03:30	17-7	14	Moderate
31/05/2025	Light rain from 02:30 – 03:00	20-7	14-10	Optimal
1/06/2025	Light rain from 05:30 – 06:00	28-15	13-10	Moderate
2/06/2025	Light to moderate rain from 21:00 – 23:30	41-7	12-7	Suboptimal
3/06/2025	Light rain from 00:00 – 01:00	32-15	12-9	Moderate

2.4 Evaluation of the Importance of the Survey Area for Bat Species

The value of the importance of the Survey Area for bat species was evaluated using the ecological evaluation guidance given in the Transport Infrastructure Ireland ('TII'), formerly known as National Roads Authority ('NRA'), guidance on assessment of ecological impacts of National Road Schemes [11]. This guidance provides ratings for resources based primarily on geographic context and allows for resources at the following levels:

- International Importance;
- National Importance;
- County Importance (or vice-county in the case of plant or insect species);
- Local Importance (Higher Value); and,
- Local Importance (Lower Value).

3 RESULTS

3.1 Desk-Based Results

Prior to conducting the field surveys, a desk-based review of information sources was completed.

Three of the nine resident bat species found in Ireland have been recorded within a 2km radius of the Survey Area at the time of writing this report [6]: Daubenton's bat, common pipistrelle and brown long-eared bat. The NBDC records were checked on 8th January 2025. The following NBDC 2km grids have been reviewed: W25G, W25H, W25I, W25L, W25M, W25N, W25R, W25S, W25T. Only records over the past 10 years were included in this report. The parameter of 10 years was chosen on the basis of habitat adaption and modification; it is considered that any records over 10 years old are not representative of the current distribution of bat species populations.

The National Bat Database of Ireland showed that the nearest known roost is located in a 1km grid square, ca. 633m to the west of the Survey Area [7]. This was recorded as a brown long-eared bat roost in a building in 2019 in Dunmanway, Co. Cork.

The National Lesser Horseshoe Bat Database showed that the nearest known lesser horseshoe bat roost is located in a 1km grid square, ca. 6.6km to the west of the Survey Area. This was most recently recorded in 2013 [12].

Table 3-1 provides details of the habitat suitability index for the Survey Area [6]. The habitat suitability index identifies the geographical areas that are suitable for individual species. The index ranges from 0 to 100, with 100 being the most favourable to bats. The index presented is for all species combined, in addition to the individual species indices within the Survey Area.

From the indices, it can be established that the Survey Area has an overall high habitat suitability index range of 28-36. The habitat suitability for Irish bats within the area ranges from very low to very high. Excluding Nathusius' pipistrelle and the lesser horseshoe bat, which have a 'very low' and 'low' habitat suitability for the Survey Area, respectively, all of the other listed species are likely to occur within the area.

Table 3-1: Habitat Suitability Index

Bat Species	Latin Name	Suitability Index Range	Suitability Index Level
All Bat Species	-	28-36	High
Brown Long-eared Bat	*Plecotus auritus*	50-79	Very High
Whiskered Bat	*Myotis mystacinus*	32-44	High
Common Pipistrelle	*Pipistrellus pipistrellus*	31-38	Moderate
Soprano Pipistrelle	*Pipistrellus pygmaeus*	31-38	Moderate
Leisler's bat	*Nyctalus leisleri*	30-37	Moderate
Natterer's Bat	*Myotis nattereri*	27-36	Moderate
Daubenton's Bat	*Myotis daubentonii*	22-29	Moderate
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	5-13	Low
Nathusius' Pipistrelle	*Pipistrellus nathusii*	0-5	Very Low

3.2 Field-Based Results

3.2.1 Daytime Bat Walkover Survey

It was concluded that the Survey Area provides *Low* foraging and flight path habitat suitability for bats. The Survey Area consists of a former quarry, but areas of immature woodland, scrub, ponds and wet grassland were also present.

3.2.2 Ground Level Tree Assessment

No trees within the Survey Area were considered suitable for roosting bats.

3.2.3 Dusk NBW Survey Results

Between moderate and high levels of bat activity were recorded during the bat surveys undertaken on site in 2023, 2024 and 2025. The surveyors recorded the majority of bat activity in the north of the Survey Area, and bats were observed foraging and commuting over the vegetation and waterbodies on site. No bats were roosting onsite.

The following bats were recorded as a result of the dusk surveys onsite:

- Common pipistrelle, soprano pipistrelle, Leisler's bat, brown long-eared bat, and *Myotis species* were recorded foraging and commuting within the Survey Area. The most frequently encountered species of these were soprano pipistrelle, followed by common pipistrelle; and,
- Leisler's bat and soprano pipistrelle were recorded shortly after sunset during the dusk surveys, indicating that bat roosts are likely to be present within the vicinity of the Survey Area.

3.2.3.1 Dusk NBW 24/07/2023

Sunset was at 21:38.

T1

The first bat recorded was a Leisler's bat at 21:38, but the surveyor did not observe it. Shortly afterwards, at 21:40, two Leisler's bats were observed foraging in the northeast of the Survey Area until 21:43. The next bat observed by the surveyor was a soprano pipistrelle at 22:03, commuting over the path in the north of the Survey Area towards the south of the Survey Area. From 22:18, a combination of common pipistrelle and soprano pipistrelle were recorded foraging in the scrub and immature woodland to the west of the road in the north of the Survey Area. At 22:30, common pipistrelle and soprano pipistrelle were also observed foraging over the grassland adjacent to the road in the north of the Survey Area. Common pipistrelle and soprano pipistrelle were also observed foraging and commuting over the road towards the east of the Survey Area. The last bat observed was a soprano pipistrelle at 23:35. It should be noted that bat calls were recorded but not observed while the surveyor was walking along all areas of T1. It can therefore be assumed that bats are using the habitats within the vicinity of T1 in the Survey Area for foraging and commuting.

Overall, there was high bat activity recorded at T1 with ca. 106 bat passes recorded per hour. Soprano pipistrelle had ca. 64 passes per hour, common pipistrelle had ca. 32 passes per hour, Leisler's bat had ca. eight passes per hour, brown long-eared bat had ca. one pass per hour and *Myotis* species had ca. one pass per hour.

T2

The first sighting and recording at T2 was a soprano pipistrelle commuting north to south over the road in the north of the Survey Area. Shortly afterwards, at 21:57, a soprano pipistrelle was seen commuting east to west over the lake in the northeast of the Survey Area. A soprano pipistrelle was also observed foraging over the grassland adjacent to the lake, and commuting

north to south over the same area. Multiple soprano pipistrelle were observed commuting and foraging over the area to the south of the lake onsite. The first common pipistrelle recorded and observed was at 22:10, seen commuting east to west over the road in the south of the Survey Area. At 22:15, four individual soprano pipistrelle were observed foraging over the grassland to the south of the Survey Area. The first non-pipistrelle species recorded and observed was a Leisler's bat at 22:26, seen commuting south to north over trees to the south of the lake. A brown long-eared bat and a *Myotis* species were recorded when the surveyor was walking the transect towards the southwest of the road, but were not observed by the surveyor. Common pipistrelle and soprano pipistrelle were recorded constantly along all areas of T2 until the last bat was recorded, a soprano pipistrelle, at 23:34.

Overall, there was high bat activity recorded at T2 with ca. 91 bat passes recorded per hour. Soprano pipistrelle had ca. 69 passes per hour, common pipistrelle had ca. 15 passes per hour, Leisler's bat had ca. five passes per hour, brown long-eared bat had ca. one pass per hour and *Myotis* species had ca. one pass per hour.

3.2.3.2 Dusk NBW 17/09/2024

Sunset was at 19.45.

T1

The first bat recorded and observed at T1 was a soprano pipistrelle at 20:14, seen commuting over the road in the northeast of the Survey Area. Soprano pipistrelle and common pipistrelle were observed foraging and commuting along all areas of the road in the northwest of the Survey Area. The first non-pipistrelle species recorded was a brown long-eared bat at 20:45, not observed but recorded when the surveyor was walking by the northeast of the road. A *Myotis* species was recorded at 21:23 when the surveyor was walking adjacent to the road in the northeast of the Survey Area, but was not observed. Common pipistrelle and soprano pipistrelle were recorded consistently across all areas of T1 until the last bat was recorded, a soprano pipistrelle, at 21:44.

Overall, there was moderate bat activity recorded at T1 with ca. 32 bat passes recorded per hour. Common pipistrelle had ca. 15 passes per hour, soprano pipistrelle had ca. 14 passes per hour, Leisler's bat had ca. one pass per hour, brown long-eared bat had ca. one pass per hour, and *Myotis* species had ca. one pass per hour.

T2

The first bat recorded at T2 was a soprano pipistrelle at 19:55, but the surveyor did not observe it. Bat calls from common pipistrelle, soprano pipistrelle and brown long-eared bat were recorded infrequently for the first ca. hour of the survey, but no bats were observed by the surveyor. The first bat observed at T2 was a Leisler's bat at 21:01, observed commuting west over the vegetation in the south of the Survey Area multiple times. A Leisler's bat was also recorded at 21:10 when the surveyor was walking the transect in the southeast of the Survey Area. Common pipistrelle and Leisler's bat were observed commuting back and forth over the vegetation in the south of the Survey Area at 21:20. Common pipistrelle and soprano pipistrelle were recorded infrequently for the remainder of the survey at T2 but not observed by the surveyor. The last bat recorded was a common pipistrelle at 21:42.

Overall, there was moderate bat activity recorded at T2 with ca. 22 bat passes recorded per hour. Common pipistrelle had ca. nine passes per hour, soprano pipistrelle had ca. six passes per hour, Leisler's bat had ca. six passes per hour and brown long-eared bat had ca. one pass per hour.

3.2.3.3 Dusk NBW 03/06/2025

Sunset was at 21:46.

T1

The first bat recorded at T1 was a soprano pipistrelle at 22:15. This bat was not observed, but was recorded when the surveyor was walking along the south of the existing access track. The first bat observed at T1 was a soprano pipistrelle at 22:18, seen commuting southeast over the access track. Shortly afterwards, at 22:30, a soprano pipistrelle was seen commuting southeast over the access track and foraging over a pond onsite. At least one bat was seen constantly commuting and foraging southeast over the access track at T1 from 22:20 – 22:36 (see activity in Figure 3-1 below). The bat calls recorded during this time period included calls from common pipistrelle and soprano pipistrelle, so it is likely that the bats observed were a combination of these species. The next bat recorded was a Leisler's bat at 22:44, not observed but recorded when the surveyor was walking the transect south of the pond onsite. Soprano pipistrelle and common pipistrelle were constantly observed from 22:44 to 23:00 commuting over the access path by the surveyor at T1. One pass from a *Myotis* species was recorded at 22:50, and the surveyor observed this bat foraging over the yard in the southeast of the Survey Area. Activity significantly reduced from 23:00 until the end of the survey at 23:46. There were three passes from one common pipistrelle at 23:01 and two passes from a Leisler's bat 23:30, which was the last bat recorded during the survey.

Overall, there was moderate bat activity recorded at T1 with ca. 23 bat passes recorded per hour. Soprano pipistrelle had ca. 13 passes per hour, common pipistrelle had ca. eight passes per hour, Leisler's bat had ca. one pass per hour and *Myotis* species had ca. one pass per hour.

T2

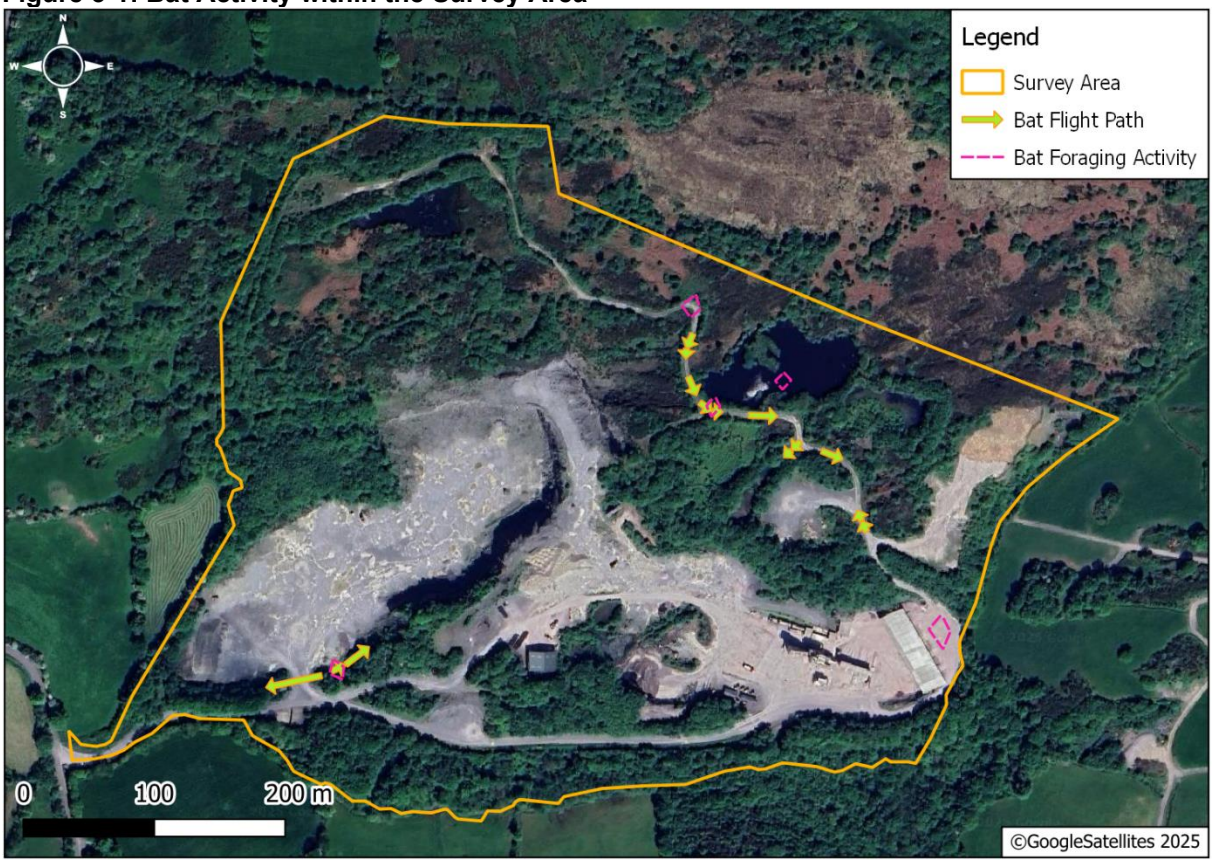
The first bat recorded at T2 was two common pipistrelle at 22:33, seen commuting west over a treeline in the quarry. The next bat observed at T2 was a common pipistrelle at 22:48, seen foraging and commuting to the east of the quarry. A call from a brown long-eared bat was recorded at 22:49 when the surveyor was walking in the southwest of the quarry, but not observed by the surveyor. No other bats were observed by the surveyor at T2, but bat calls from Leisler's bat, common pipistrelle, soprano pipistrelle and *Myotis* species were recorded infrequently when the surveyor was mostly walking the transect in the southwest of the Survey Area. The last bat recorded was a Leisler's bat at 23:30.

Overall, there was low bat activity at T2, with ca. 12 bat passes recorded per hour. Common pipistrelle had ca. four passes per hour, Leisler's bat had ca. three passes per hour, soprano pipistrelle had ca. three passes per hour, brown long-eared bat had ca. one pass per hour and *Myotis* species had ca. one pass per hour.

It should be noted that the surveyor at T2 noted extensive light spillage around the tarmac plant in the southeast of the Survey Area. The surveyor also observed a peregrine falcon flying around the quarry at 22:43. The light spillage and presence of peregrine falcon in the south of the quarry would reduce this area of the Survey Area for bats, as bats are averse to artificial lighting and peregrine falcon are known to prey on bat species.

Figure 3-1 below shows the activity observed during the bat survey on site in 2025.

Figure 3-1: Bat Activity within the Survey Area



3.2.4 SM4s

Tables 3-2 and 3-3 below summarise the results from the SM4 deployment from 21st May 2025 – 3rd June 2025.

Common pipistrelle, Leisler's bat, soprano pipistrelle, *Myotis* species, brown long-eared bat and lesser horseshoe bat were the species recorded across the SM4 deployments onsite. Assuming that the *Myotis* bat calls were recorded from all three *Myotis* species found in Ireland (Daubenton's bat, Natterer's bat and whiskered bat), this means that eight of the nine resident Irish bat species found in Ireland were recorded onsite. Nathusius' pipistrelle was the only resident Irish bat species not recorded on-site.

Overall, SM4 #2 in the east of the Survey Area had higher levels of bat activity than SM4 #1 in the west of the Survey Area. However, SM4 #1 had higher species diversity recorded.

Leisler's bat was the most frequently recorded species at SM4 #2, followed by common pipistrelle and soprano pipistrelle. *Myotis* species were recorded on five out of 14 nights of monitoring, and brown long-eared bat was recorded on three out of 14 nights of monitoring. Lesser horseshoe bat was not recorded at SM4 #2. These results indicate that Leisler's bat, common pipistrelle and soprano pipistrelle are using the woodland in the east of the Survey Area frequently throughout the night for foraging and commuting.

Common pipistrelle was the most frequently recorded species at SM4 #1, followed by soprano pipistrelle, Leisler's bat and *Myotis* species. Brown long-eared bat was recorded on three out of 14 nights of monitoring, and lesser horseshoe bat was recorded on one night of deployment (31st May 2025). The lower levels of lighting in the west of the Survey Area, where SM4 #1 was installed, make this area within the Survey Area more suitable for light-averse species, including *Myotis* species, brown long-eared bat and lesser horseshoe bat. However, as lesser horseshoe bat was only recorded on one night of 14 nights of monitoring and only a single

pass was recorded, it is unlikely that the Survey Area is a site of importance for lesser horseshoe bat.

Table 3-2: SM4 Results from Spring Monitoring – 30th May 2025 – 12th June 2025

Static Monitor Location	Survey Period	Night	Common Pipistrelle	Soprano Pipistrelle	Leisler's bat	Brown Long Eared Bat	Myotis *spp.*	Lesser Horseshoe Bat
SM4 #1 (West)	21/05/2025 – 03/06/2025	**1**	Low	Low	Low	None	None	None
		2	Low	Low	Low	None	Low	None
		3	Low	Low	Low	None	Low	None
		4	Low	Low	Low	None	Low	None
		5	Low	Low	Low	Low	Low	None
		6	Low	Low	Low	None	Low	None
		7	Low	Low	Low	None	Low	None
		8	Low	Low	Low	None	Low	None
		9	Low	Low	Low	None	Low	None
		10	Moderate	Low	Low	None	Low	None
		11	Moderate	Low	Low	None	Low	Low
		12	Low	Low	Low	Low	Low	None
		13	None	Low	None	None	Low	None
		14	Low	Low	Low	None	None	None
SM4 #2 (East)	21/05/2025 – 03/06/2025	**1**	Moderate	Low	Low	Low	None	None
		2	Low	Low	Low	Low	Low	None
		3	Low	Low	Low	Low	None	None
		4	Low	Low	Moderate	None	None	None
		5	Low	Low	Low	None	None	None
		6	Low	Low	Low	None	None	None

Static Monitor Location	Survey Period	Night	Common Pipistrelle	Soprano Pipistrelle	Leisler's bat	Brown Long Eared Bat	Myotis *spp.*	Lesser Horseshoe Bat
		7	Low	Low	Moderate	None	None	None
		8	Low	Low	Low	None	None	None
		9	Low	None	Low	None	None	None
		10	Low	Low	Moderate	None	Low	None
		11	Low	Low	High	None	Low	None
		12	Low	Low	Low	None	Low	None
		13	Low	None	Low	None	Low	None
		14	None	None	None	None	None	None
		14	Low	Low	Low	None	None	None

Figure 3-2 and Figure 3-3 below show bar charts illustrating the results from the SM4 monitoring undertaken within the Survey Area in 2025.

Figure 3-2: Bar Chart illustrating Results from SM4 #1 Static Monitoring from 21/05/2025 - 03/06/2025

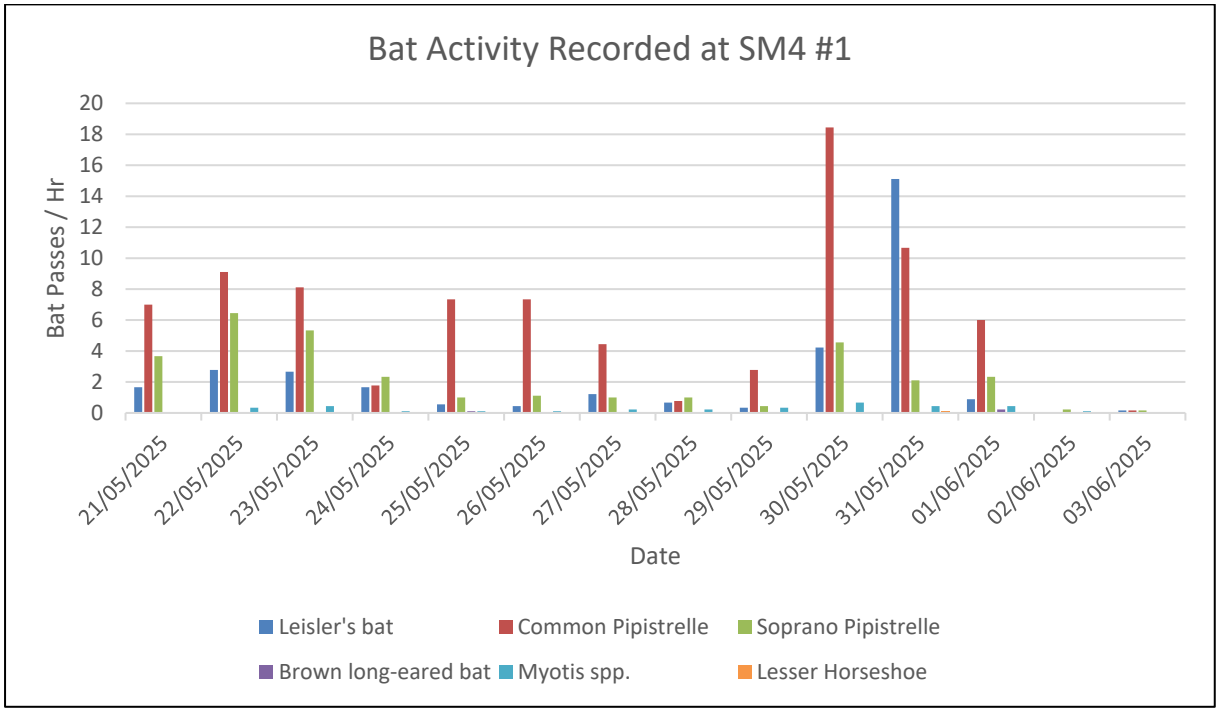
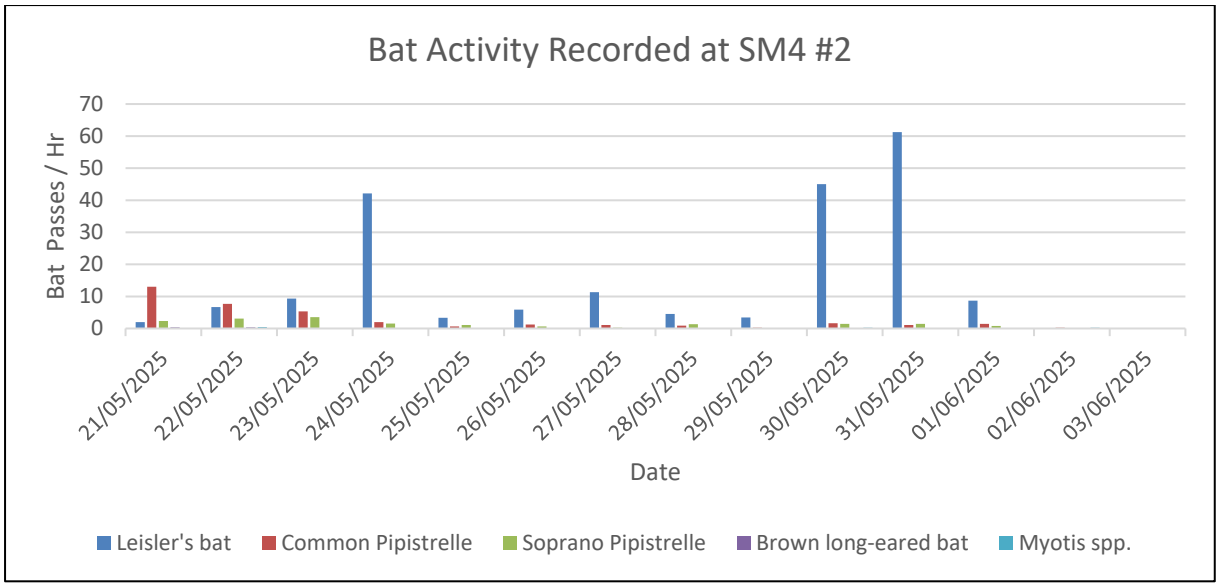


Figure 3-3: Bar Chart illustrating Results from SM4 #2 Static Monitoring from 21/05/2025 - 03/06/2025



4 CONCLUSIONS

Bat surveys were undertaken within the Survey Area from 2023 – 2025 and included yearly nighttime bat walkover surveys and SM4 monitoring in 2025.

The bat survey results can be summarised as follows:

- Common pipistrelle, soprano pipistrelle, Leisler's bat, brown long-eared bat, and *Myotis* species were recorded commuting / foraging within or above the Survey Area during the NBW surveys. In addition to these species, one lesser horseshoe pass was recorded during the SM4 monitoring in 2025. The most frequently encountered species across all surveys were soprano pipistrelle, common pipistrelle and Leisler's bat. These species are widespread and the most commonly encountered species within Ireland;
- Leisler's bat and soprano pipistrelle were recorded soon after dusk during the first survey, indicating that a bat roost for this species is likely to be present within the local area. The survey recorded the majority of the bat commuting and foraging activity over the woodland, scrub and other vegetation in the north of the Survey Area; and,
- No bats were identified to be roosting on the Site.

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Murray Brothers Tarmacadam Ltd

APPENDIX 14.4
BIRD REPORT

VOLUME III
APPENDICES

FEBRUARY 2026

February 2026

Bird Survey Results Report

Ardcahan Quarry

On behalf of Murray Brothers Tarmacadam Ltd.

MALONE O'REGAN ENVIRONMENTAL

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Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	18/02/2026	Bird Report	Final	SK	AK	DH

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Bird Survey Results Report

Ardcahan Quarry, Dunmanway, Co. Cork

On behalf of Murray Brothers Tarmacadam Ltd.

6 Joyce House, Barrack Square, Ballincollig, Co. Cork

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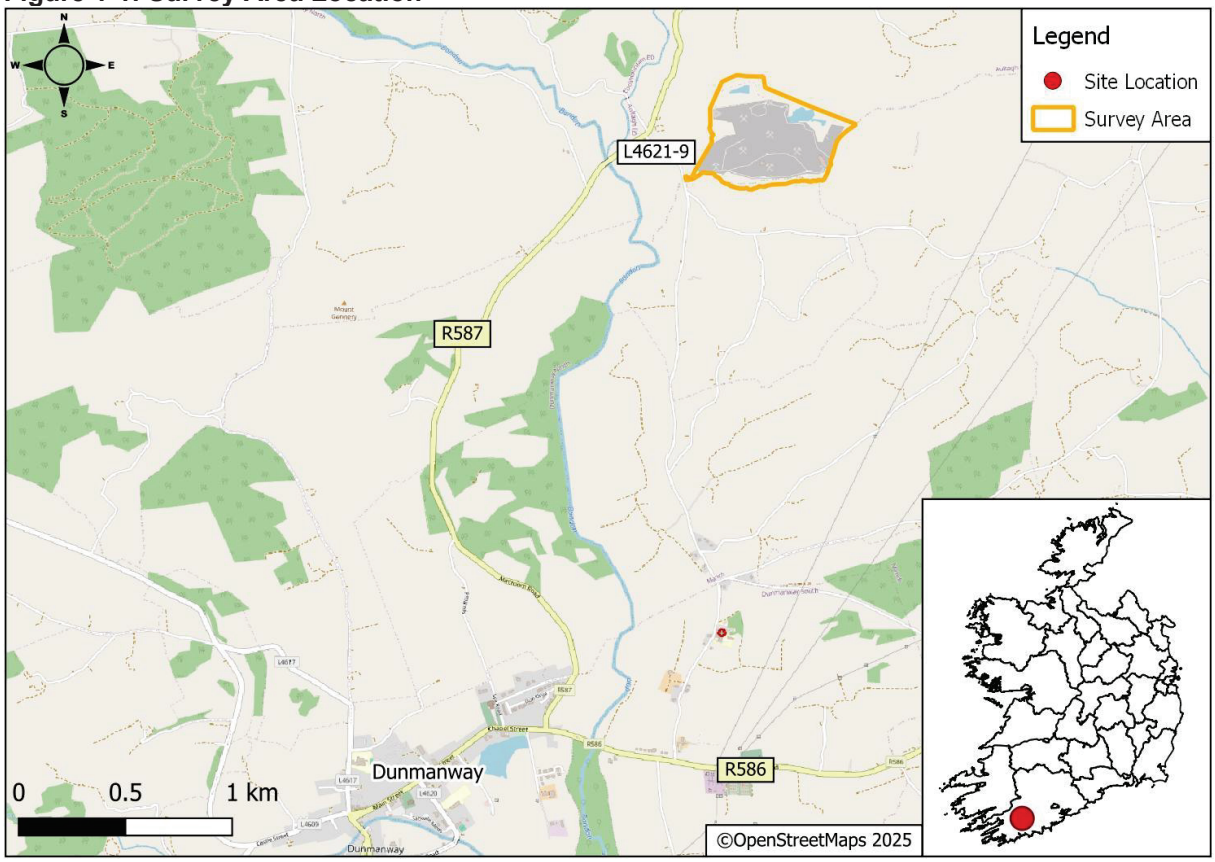
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1 INTRODUCTION

This report has been prepared by Malone O'Regan Environmental ('MOR Environmental') on behalf of our client Murray Brothers Tarmacadam Ltd ('the Applicant'), to present the findings of wintering bird surveys, breeding bird surveys and peregrine falcon surveys undertaken within Ardcahan Quarry and associated lands at Dunmanway, Co. Cork (ITM OS Reference W 25061 55898) ('the Survey Area').

The Survey Area is located on a site that is circa ('ca.') 25 hectares ('ha') in size and is located within the townland of Ardcahan, Co. Cork, ca. 3.5km northeast of Dunmanway, Co. Cork and is shown in Figure 1-1 ('the Survey Area').

Figure 1-1: Survey Area Location

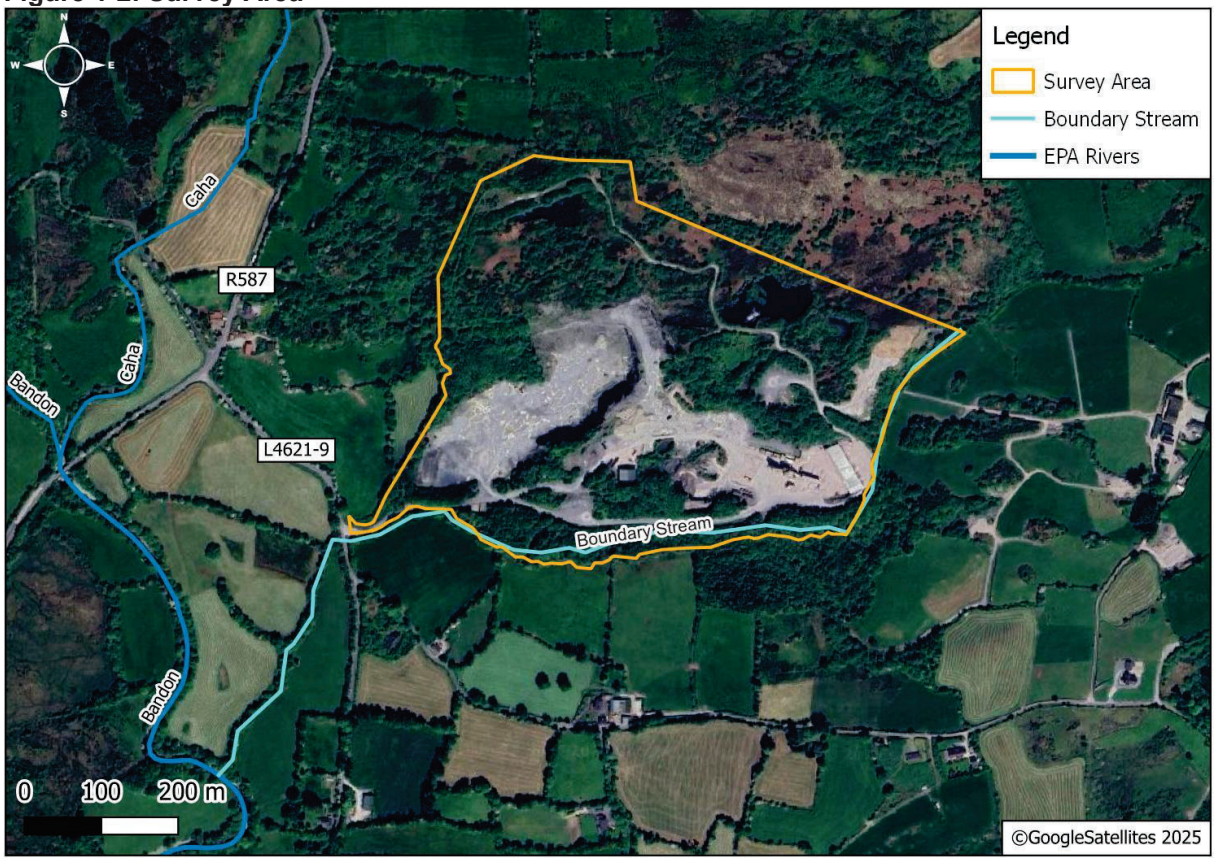


The Survey Area is located in a rural setting characterised by undulating topography, irregularly shaped fields and clusters of mixed woodland. The lands with the Survey Area are sloped with lower ground levels in the southwest (ca. 72 to 75 MOD1), rising to the north (118 MOD).

The former extraction area (1990 - 2014) is situated in the southwest of the overall landholding. The northern part of the landholding has not been quarried, but portions of it were used for storing crushed product, as a settling pond and for backfilling. In the southeast of the landholding is a tarmacadam production plant and buildings used for administration, welfare and storage purposes. The Survey Area also contains a network of internal roads which extend across the wider landholding.

The land immediately around the quarry consists of scrub, woodland and agricultural grassland. Land uses in the surrounding area primarily comprise livestock farming and rural housing.

Figure 1-2: Survey Area



1.1 Relevant Legislation

All wild birds are protected by law under the Wildlife Act 1976 and subsequent amendments. All species are afforded full protection under this Act, which makes it a criminal offence for anyone without a licence to:

- Kill or injure a wild bird;
- Disturb, damage or remove a wild bird nest or eggs; and,
- Disturb any wild bird while at the nest.

In addition to domestic legislation, birds are also protected under the EU Birds Directive (2009/147/EC). The Birds Directive provides for a network of sites to protect birds at their breeding, feeding, roosting and wintering areas.

For the purposes of this report, a species was considered to be of 'conservation concern' should it be included in one or more of the following:

- Annex 1 of the EU Birds Directive;
- Part 1 of the Fourth Schedule of the Wildlife Act, 1976 (as amended);
- Birds of Conservation Concern in Ireland ('BoCCI') red list; and,
- BoCCI amber list.

1.2 Objectives

The bird surveys aimed to assess the following:

Wintering / Breeding Bird Suitability Assessment

- To ascertain the potential of the Survey Area to provide suitable habitat for breeding birds, to support important assemblages of wintering birds or to support rare or notable species.

Wintering Bird Surveys

- To identify, if any, overwintering bird species utilise the Survey Area; and,
- To determine the potential of overwintering bird species, especially wetland bird species, to utilise the Survey Area as an inland feeding / roosting Site.

Breeding Bird Surveys

- To identify and assess the number of active breeding bird territories within the Survey Area;
- To map active nests, where present, within the Survey Area;
- To evaluate the overall bird community within the Survey Area by recording all behavioural activity of birds; and,
- Utilise the information in order to identify and assess any areas of the Survey Area that may require special consideration during the breeding bird season.

Breeding Peregrine Falcon (*Falco peregrinus*)

- To identify and assess the number of active peregrine falcon territories within the Survey Area;
- To map active nests, where present, within the Survey Area; and,
- To utilise the information in order to identify and assess any areas of the Survey Area that may require special consideration during the breeding bird season.

1.3 Statement of Authority

This report was checked by Ms. Amelia Keane, Senior MOR Environmental Consultant - Ecology. Amelia is a full member of the Chartered Institute of Ecology and Environmental Management ('CIEEM') and has over 6 years' experience working in the ecological consultancy with a specialisation in ornithology. As part of her role, Amelia regularly conducts ornithological surveys in line with Best Practice Guidelines and prepares specialist ornithological assessments and reports.

This report was approved by Mr. Dyfrig Hubble, Associate Director - Ecologist. Dyfrig is a full member of CIEEM. Dyfrig has over 18 years' experience working in the ecological consultancy sector, including habitat surveys and appraisals and specialist protected species surveys in support of Appropriate Assessments and Ecological Impact Assessments.

2 METHODOLOGY

The methodologies used to establish the presence or potential presence of breeding birds and potentially suitable habitat are summarised below.

2.1 Desk Study

A desk-based review of information sources was completed, which included the following sources of information:

- Review of aerial maps of the Survey Area and the surrounding area;
- The National Parks and Wildlife Service ('NPWS') website was consulted to obtain the most up-to-date details on conservation objectives for the European Designated sites relevant to this assessment [1];
- Bird Watch Ireland – The Irish Wetland Bird Survey ('I-WeBS') data was reviewed with regard to wintering waterbird population within the vicinity of the Survey Area [2]; and,
- The National Biodiversity Data Centre ('NBDC') website was consulted with regard to species distributions within 2km of the Survey Area [3].

2.1.1 Irish Wetland Bird Survey ('I-WeBS')

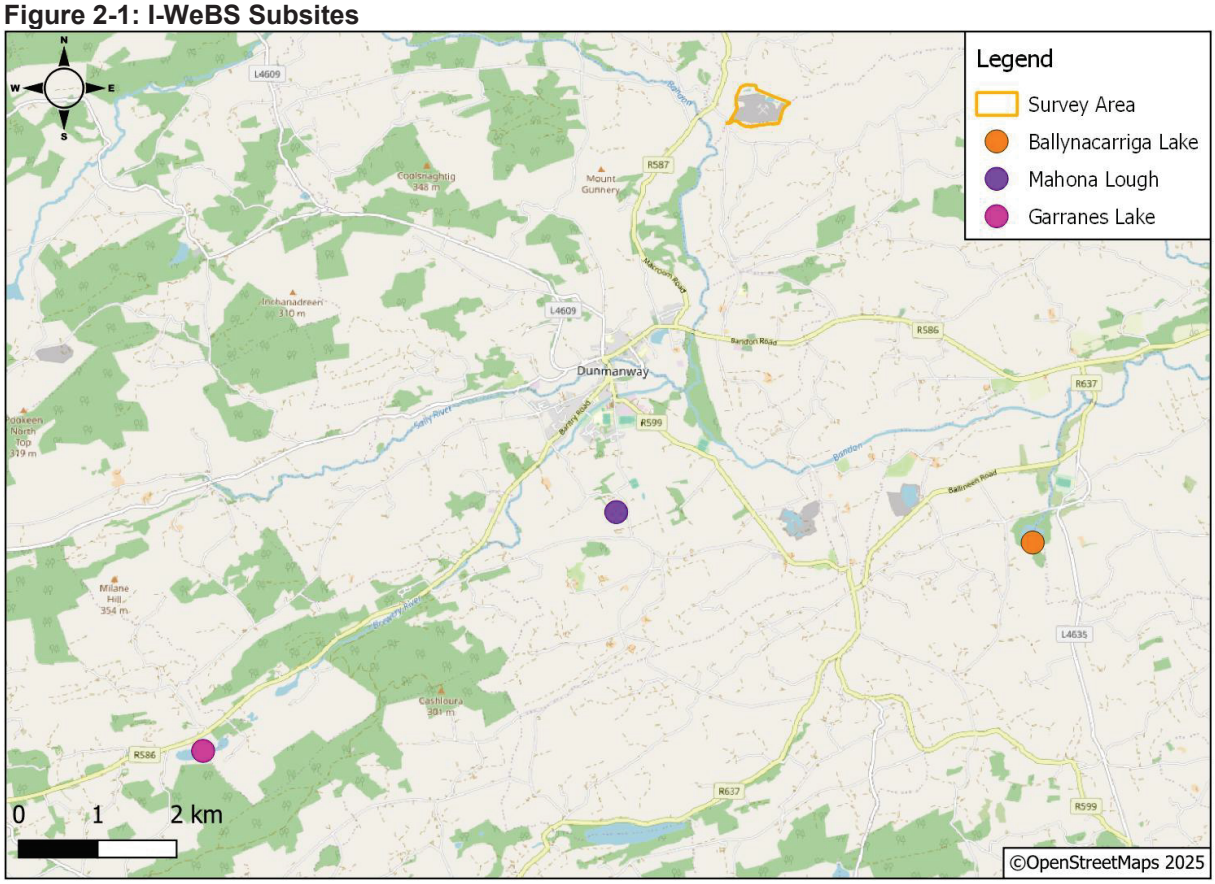
As mentioned above, I-WeBS data was reviewed in order to understand the potential assemblages of wintering bird populations that tend to occur within the vicinity of the Survey Area.

As part of this review, a data request was submitted to the I-WeBS on 13th February 2025, which is coordinated by BirdWatch Ireland and under contract to the NPWS. The data request was made for all available data from the nearest subsites in the vicinity of the Survey Area, which resulted in data from eight subsites to the Survey Area as listed in Table 2-1 below. See Figure 2-1 for the location of the subsites in relation to the Survey Area.

Table 2-1: I-WeBS subsites

Site Name	Site Code	Distance from the Survey Area (km)	Direction from the Survey Area
Ballynacarriga Lake	0L013	ca. 6.1km	SE
Mahona Lough	0L014	ca. 5.1km	SW
Garranes Lake	0L023	ca. 10.3km	SW

Figure 2-1: I-WeBS Subsites



2.2 Field Studies

2.2.1 Habitat Assessment

An initial habitat survey was undertaken on 9th January 2023, by two suitably qualified MOR Environmental Ecologists, with updated surveys completed on:

- 17th September 2024; and
- 21st May 2025.

These surveys aimed to assess the extent and quality of habitats present within the Survey Area and to identify any potential ecological receptors. All the surveys were undertaken using Fossitt's '*Guide to Habitats in Ireland*' [4] and were conducted in line with the Heritage Council's '*Best Practice Guidance for Habitat Survey and Mapping*' [5].

2.2.2 Bird Suitability Assessment

During the initial habitat survey on 9th September 2023, the Survey Area was assessed for its potential to provide nesting habitat for breeding birds, to support important assemblages of wintering birds or to support rare or notable species.

The habitats within the Survey Area were fully assessed for their potential to provide suitable nesting, winter roosting habitat or foraging habitat. Areas of wetland habitat, scrub habitat and woodland were noted.

Following the initial assessment of the Survey Area and a desk-based review, it was deemed necessary to undertake specialist wintering and breeding bird surveys on the Site.

2.2.3 Winter Bird Survey

Vantage point ('VP') bird surveys were undertaken at the Survey Area by a suitably qualified and experienced MOR Environmental ecologist on 16th February 2023 and 21st March 2023.

The surveys were undertaken at pre-determined VP locations; see Figure 2-3. Given the fact that the Survey Area contains two large separate waterbodies, two VP locations were identified that provide suitable views of each waterbody and were located in a safe position away from ongoing activities associated with the tarmacadam plant within the Survey Area.

All species observed utilising the Survey Area were recorded, and their locations were marked on the maps. The surveys were undertaken using methodology adapted from the I-WeBS Core Counts methodology [6]. This methodology employs the well-established technique of counting the numbers of waterbirds at wetland sites using the so-called 'look-see' method, whereby the observer surveys the whole of a predefined area.

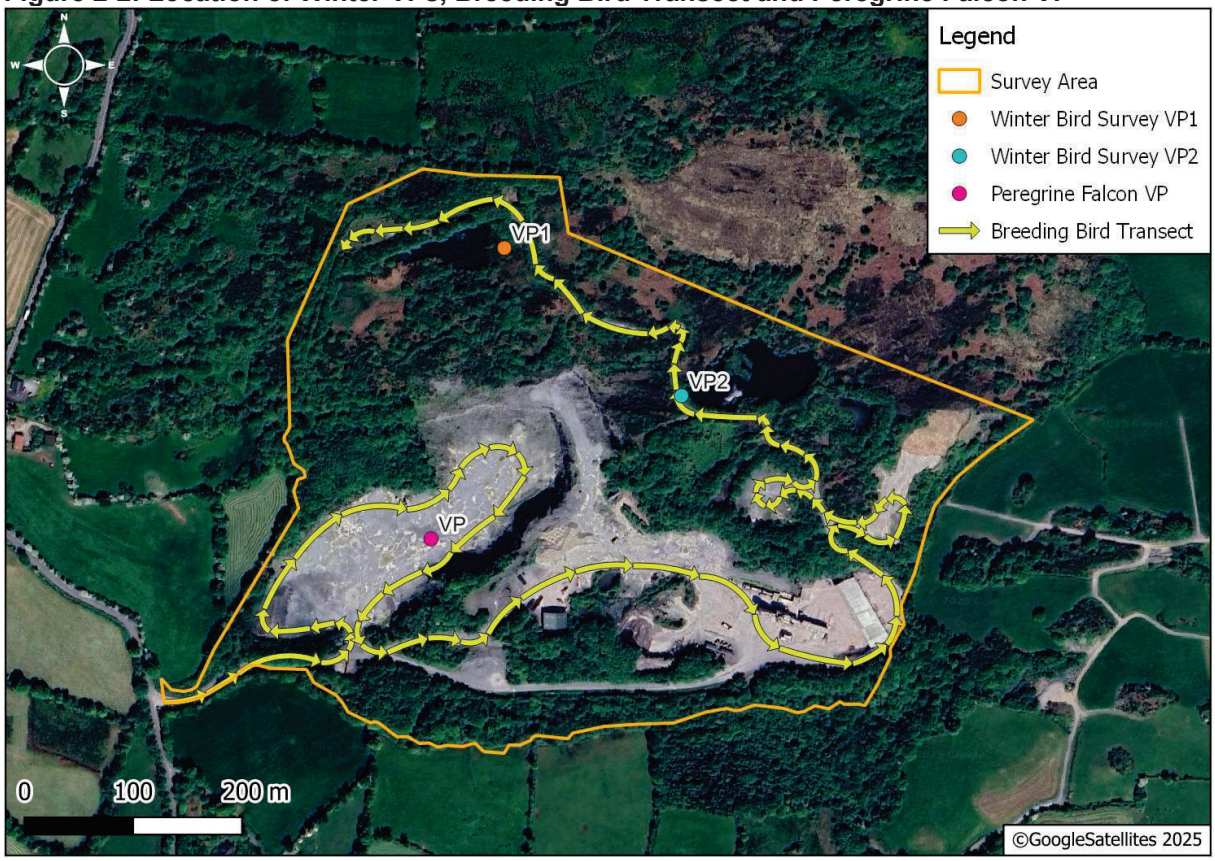
During the surveys, all birds were recorded using a standard British Trust for Ornithology ('BTO') code through sight and sound and used optical equipment, such as a telescope and binoculars, to minimise disturbance to wintering birds. The behaviours and activities of the birds were recorded to identify whether the birds were roosting or feeding within the Survey Area.

The date, time, tide (in Cork Harbour) and weather conditions of each survey are described in Table 2-2.

Table 2-2: Wintering Bird Survey Metadata

Visit No.	Date	Time		Tide Times	Temp (°C) Start - End	Wind (Beaufort Scale)	Rain	Cloud Cover
		VP1	VP2					
1	16/02/2023	08:30 – 11:30	11:30 – 14:30	13:21 (high)	9 - 10°C	3	Showers	25-100%
2	21/03/2023	08:00 – 11:00	11:05-14:05	11:48 (low)	9 - 10°C	4	Heavy Rain Showers	100%

Figure 2-2: Location of Winter VPs, Breeding Bird Transect and Peregrine Falcon VP



2.2.4 Breeding Bird Survey

Breeding bird transect surveys were undertaken within the Survey Area on the following dates:

- 17th May 2023;
- 7th June 2023;
- 12th July 2023;
- 10th April 2025; and,
- 23rd April 2025.

These surveys were conducted by a suitably qualified and experienced MOR Environmental Ecologist, and in line with the methodology described in:

- British Trust for Ornithology ('BTO') - *A Field Guide to Monitoring Nests* [7]; and,
- Common Bird Census in *Bird Monitoring Methods* [8].

The Common Bird Census ('CBC') methodology was used to establish whether any breeding bird species were utilising the Survey Area. The transect route is shown in Figure 2-2 above.

All birds were recorded through sight and sound. Optical equipment was used, including binoculars, in order to minimise disturbance to potentially breeding birds. During the surveys, the behavioural activity of the recorded birds was noted using the BTO breeding status codes [9]. Birds that displayed non-territorial behaviours were recorded as well (i.e., birds that were foraging and not calling, birds that were loafing).

Birds were classified as non-breeding, possibly breeding and confirmed breeding based on the behaviours exhibited. The criteria for each classification are described below:

- Non-breeding – Birds that were flying over the Survey Area, birds that were foraging and not calling, birds that were loafing;
- Possibly Breeding – Birds observed in suitable nesting habitat and displaying either territorial and / or courtship behaviours, including singing / calling, nest building behaviours or observed visiting a possible nest; and,
- Confirmed Breeding – Birds observed either on nest or carrying faecal sac or food, sighting of a nest with eggs / chicks, used nests, eggshells or recently fledged young.

The metadata for the breeding bird surveys are described in Table 2-3. The transects used are shown in Figure 2-2.

Table 2-3: Breeding Bird Survey Metadata

Visit	Date	Survey Times (Start-End)	Temperature (°C) (Start – End)	Wind (Beaufort Wind Scale)	Rain	Cloud Cover
1	17/05/2023	07:15 – 08:45	7 - 10°C	1	None	0-10%
2	07/06/2023	07:15 – 08:45	11 – 14°C	2	None	80-100%
3	12/07/2023	07:30 – 08:55	13 – 14°C	2	None	40-50%
4	10/04/2025	07:15 – 08:50	5 – 8°C	2	None	0%
5	23/04/2025	06:40 – 08:20	6 – 10°C	3	None	80%

2.2.5 Peregrine Falcon Survey

Following the identification of suitable peregrine falcon habitat within the Survey Area, targeted surveys were undertaken by suitably qualified and experienced MOR Environmental Ecologists on the following dates:

- 17th May 2023;
- 7th June 2023;
- 14th April 2025; and,
- 23rd April 2025.

These surveys were undertaken to confirm the presence / absence of peregrine falcon within the vicinity of the Survey Area.

The surveys were undertaken at a pre-determined VP to the southwest of the Survey Area, which provided appropriate views of the suitable nesting habitat for peregrine falcon; see Figure 2-3 above.

The VP surveys were conducted over a 3-hour period. The surveyors recorded peregrine falcons through sightings and, where possible, sound. Optical equipment, including binoculars and telescopes, was used to minimise disturbance to any birds potentially present on the Site.

The peregrine falcon surveys were conducted utilising methodology adapted from:

- Raptors: A Field Guide for Surveys and Monitoring [10]; and,
- BTO – A Field Guide to Monitoring Nests [7].

Survey dates, times and weather conditions are described in Table 2-4.

Table 2-4: Peregrine Falcon Survey Metadata

Date	Survey Times (Start-End)	Temperature (°C) (Start – End)	Wind (Beaufort Wind Scale)	Rain	Cloud Cover (0-100%)	Visibility
17/05/2023	10:00-13:10	13-16°C	4	None	10%	Good
06/06/2023	10:00-13:00	14-18°C	3	None	75-100%	Good
14/04/2025	10:00-13:00	10-17°C	2	None	0%	Good
23/04/2025	10:00-13:00	12-15°C	0	None	50-70%	Good

2.3 Survey Constraints

Sections of the Survey Area were inaccessible due to steep topography, water or dense vegetated gorse cover. Additionally, noise levels within a section of the Survey Area, particularly around operational buildings and machinery, limited the ability to detect potential birds, as background noise made it difficult to detect. However, it is not considered that these areas are likely to support flora or fauna that present a constraint to this survey or this assessment.

The bird survey VPs were selected on the basis that it facilitated the best view of the waterbodies within and adjacent to the Survey Area. Refer to Figures 2-2 and Figure 2-3 above.

These areas were considered relatively small in comparison to the total size of the ponds. As birds are highly mobile and move throughout the ponds during the surveys, these obstructed areas were not considered to be a significant limitation.

No other limitations were encountered during the bird surveys.

2.4 Avian Receptor Evaluation

The value of the avian receptors at the Survey Area was evaluated using the ecological evaluation guidance given in the National Roads Authority ('NRA') guidance on assessment of ecological impacts of National Road Schemes [11]. This guidance provides ratings for resources based primarily on geographic context and allows for resources at International, National, County and Local (higher and lower value) levels. Key ecological receptors for assessment are those deemed to be above the 'Local Importance (lower value)' evaluation (see Table 2-5 below).

Table 2-5: NRA Guidance for Evaluation Criteria relevant to Avian Fauna

Resource Evaluation	Criteria
International Importance	'European Site' including Special Area of Conservation ('SAC'), Site of Community Importance ('SCI'), Special Protection Area ('SPA'), proposed Special Area of Conservation, or Proposed Special Protection Area ('pSPA'). Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). Resident or regularly occurring populations (assessed to be important at the national level) of the following: • Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive.

Resource Evaluation	Criteria
National Importance	Site designated or proposed as a Natural Heritage Area ('NHA'), Statutory Nature Reserve, Refuge for Fauna and Flora protected under the Wildlife Acts, or National Park, Resident or regularly occurring populations (assessed to be important at the national level) of the following: • Species protected under the Wildlife Acts; and / or • Species listed on the relevant Red Data list.
County Importance	County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local Biodiversity Action Plan ('BAP') (if this has been prepared). Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level. Resident or regularly occurring populations (assessed to be important at the County level) of the following: • Species of bird, listed in Annex I and / or referred to in Article 4(2) of the Birds Directive. • Species protected under the Wildlife Acts; and / or, • Species listed on the relevant Red Data list.
Local Importance (High Value)	Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP (if this has been prepared). Resident or regularly occurring populations (assessed to be important at the Local level) of the following: • Species of bird, listed in Annex I and / or referred to in Article 4(2) of the Birds Directive. • Species protected under the Wildlife Acts; and / or, • Species listed on the relevant Red Data list.
Local Importance (Low Value)	Species that remain common and widespread. Green Listed species.

3 RESULTS

3.1 Desk Study

3.1.1 NBDC Data

Table 3-1 provides a summary of records held by the NBDC for legally protected or otherwise notable bird species that occurred within 2km of the Survey Area over the last ten years [3]. The NBDC records were checked on 17th February 2025.

The parameter of ten years was chosen to allow for habitat adaption and modification; it is considered that any records over ten years old are not representative of the current distribution of species populations.

Table 3-1: Bird Species within 2km of the Survey Area (Grid: W25G, W25H, W25I, W25L, W25M, W25N, W25R, W25S, W25T)

Common Name	*Scientific Name*	Date of last record	Designation
Bird Species			
Blackcap	*Sylvia atricapilla*	10/06/2014	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Green List
Common Buzzard	*Buteo buteo*	30/06/2016	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Green List
Common Kingfisher	*Alcedo atthis*	15/06/2017	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Amber List
Common Swift	*Apus apus*	14/07/2021	Wildlife Acts 1976 / 2000 Birds of Conservation Concern Red List

3.1.2 Irish Wetland Bird Survey ('I-WeBS')

I-WeBS data was requested for nearby sites within the vicinity of the Survey Area. This data request was for all available data from the nearest I-WeBS sites. This included the following sites and years of data:

- Ballynacarriga Lake (Site code: 0L013) – Data from 1994/1995 to 2019/2020, but there was no available data for 2012/2013;
- Mahona Lough (Site code: 0L014) – Data provided only for 2018/2019; and,
- Garranes Lake (Site code: 0L023) – Data provided only for 2012/2013.

It is important to note that although the data sets for these sites and subsites were not continuous and contained information gaps for years, the records still provide an understanding of the potential assemblage of bird populations that may utilise the areas within the vicinity of the Survey Area.

A total of 29 species were recorded in all of the data. However, during the most recent counts available, the 2019/2020 season, a total of 26 species were recorded.

Following a review of the available data, no species were recorded in numbers of international importance. However, three species were recorded in the Ballynacarriga Lake site in numbers that were considered to be of national importance:

- Coot were recorded at numbers of international importance in the 2019/20;
- Gadwall were recorded at numbers of international importance in the 2019/20; and,
- Little grebe were recorded at numbers of international importance in the 2019/20.

It should be noted that these subsites are not located within the immediate vicinity of the Survey Area.

3.2 Field Studies

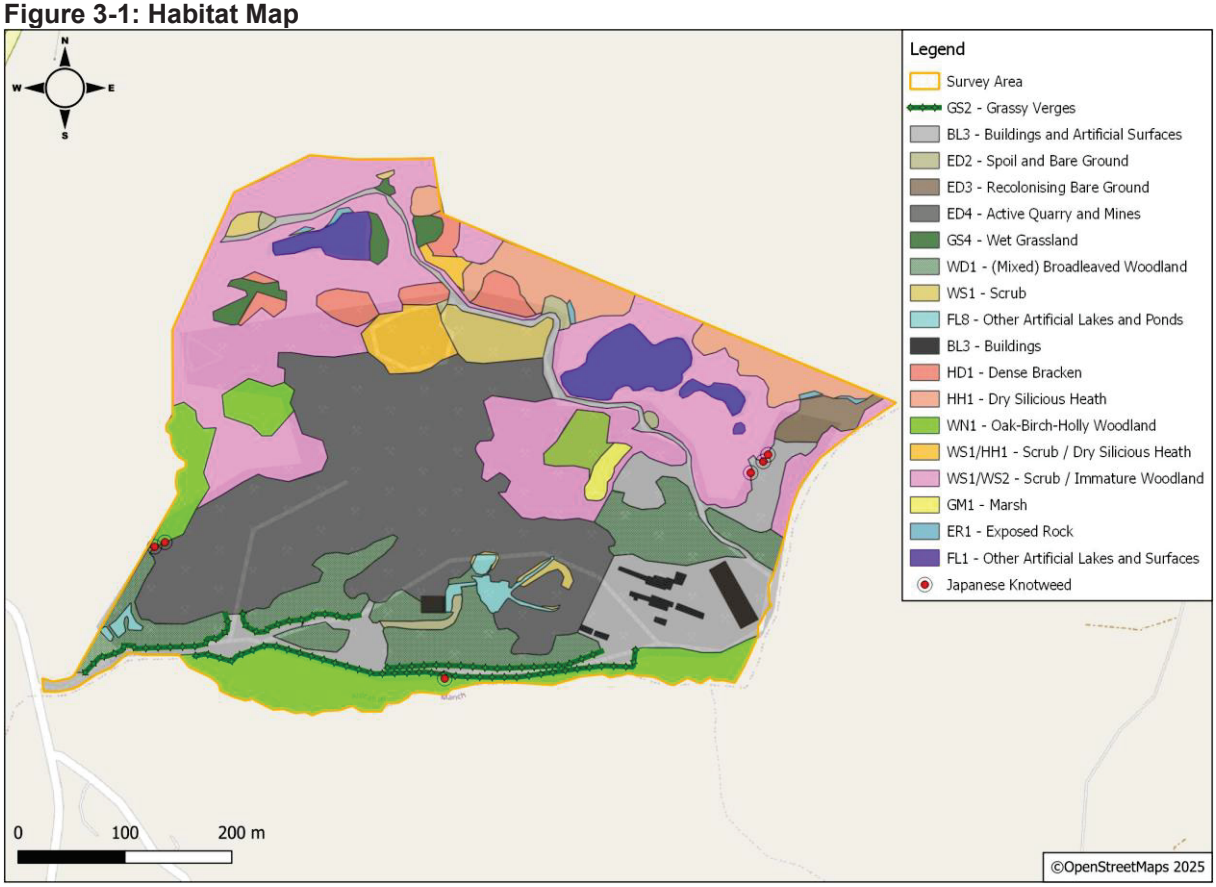
3.2.1 Habitat Assessment

The habitat assessments identified the following habitats on-site:

- Active Quarry and Mines (ED4);
- Artificial Surfaces (BL3);
- Bare Ground (ED2);
- Dense Bracken (HD1);
- Dry Silicious Heath (HH1);
- Dystrophic Lake (FL1);
- Exposed Rock (ER1);
- Grassy Verges (GS2);
- Marsh (GM1);
- Mixed Broadleaved Woodland (WD1);
- Oak-Birch-Holly Woodland (WN1);
- Other Artificial Lakes and Ponds (FL8);
- Recolonising Bare Ground (ED3);
- Scrub (WS1);
- Scrub / Immature Woodland (WS1 / WS2); and,
- Wet Grassland (GS4).

The distribution of habitats is illustrated in Figure 3-1.

Figure 3-1: Habitat Map



3.2.2 Bird Habitat Assessment

The surveys undertaken at the Survey Area identified two lakes that had the potential to support wintering and breeding waterbirds. As a result, both wintering and breeding bird surveys were conducted to assess these areas.

The woodlands, scrub, wet grassland and heath within the Survey Area had the potential to support breeding birds. Therefore, breeding bird surveys were undertaken.

The cliff edges of the quarry were identified with the potential to support peregrine falcon. Therefore, peregrine falcon surveys were undertaken.

3.2.3 Wintering Bird Surveys

Table 3-2 contains a summary of the birds recorded within the Survey Area and flying over the Survey Area, and their status according to the BoCCI, which is the third assessment of the status of all regularly occurring birds on the island of Ireland [13].

During the wintering bird VP surveys, a total of ten species were recorded:

- Four Green-listed BoCCI non-Annex I species – buzzard, grey heron, jay and moorhen;
- Six Amber-listed BoCCI, non-Annex I species were recorded – coot, herring gull, mallard, tufted duck, teal and little grebe; and,
- No Red-listed BoCCI species were recorded.

Details on the species that were recorded, their abundance and their behaviours are provided in Table 3-2 below.

Table 3-2: Birds Recorded within the Survey Area during the Wintering Bird Surveys

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded		Notes
			Visit 1	Visit 2	
Green Listed	Buzzard	*Buteo buteo*	2	0	Visit 1: Two individuals were observed calling and soaring east of VP1. Visit 2: No buzzards were observed during this survey.
	Grey Heron	*Turdus merula*	1	1	Visit 1: One individual was observed flying low over the pond from VP1. Visit 2: One individual was identified flying south over VP2.
	Eurasian Jay	*Garrulus glandarius*	1	0	Visit 1: One individual was identified calling from within the scrub at VP1. Visit 2: No Eurasian jays were observed during this survey.
	Little Grebe	*Tachybaptus ruficollis*	8	5	Visit 1: One individual was observed diving under the water within the pond at VP2. One individual dove twice into the pond and resurfaced at VP2. One individual dove into reeds within the pond at VP2. One individual dove beside the reeds within the pond at VP2. One individual was observed travelling across the pond at VP2. Two individuals were observed travelling across the pond at VP2. One individual was observed pruning and diving in the centre of the pond at VP2 Visit 2: Two individuals were observed emerging from vegetation within the pond at VP2. One individual was observed swimming and diving within the pond at VP1. Two individuals were observed swimming and diving along the bank of the pond at VP1.
	Moorhen	*Gallinula chloropus*	1	5	Visit 1: One individual was travelling across the pond at VP2 Visit 2: Two individuals were recorded swimming in front of VP1. One individual was calling from within the woodland at VP1. One individual was observed calling and travelling across the pond at VP1. One individual was observed travelling across the pond at VP1.

Amber Listed	Mallard	*Anas platyrhynchos*	1	18	Visit 1: One individual was flushed before the survey at VP2. Visit 2: One individual was observed flying east over the Survey Area at VP1. Two individuals (female and male) were flushed and flew west at VP2. Five individuals were observed on the water within the pond during the survey at VP2. Four individuals were flushed and flew west, circled and then flew south at VP2. Two individuals flew south over the Survey Area at VP2. Two individuals were observed calling and flying over the Survey Area at VP2. Two individuals landed along the bank of the pond at VP2. One female individual was flushed and flew south at VP2. One male individual flew from the west and landed on the pond at VP2. One male individual flew from the east and landed along the bank of the pond at VP2.
	Teal	*Anas crecca*	2	0	Visit 1: Two individuals (possibly a breeding pair) were observed travelling across the pond at VP2. Visit 2: No teal were observed during this survey.
	Coot	*Fulica atra*	0	6	Visit 1: No coot were observed during these surveys. Visit 2: One individual was observed swimming and diving within the pond at VP1. One individual was observed swimming within the pond at VP1. One individual was observed swimming to the north of the pond by VP1. One individual was observed feeding and swimming into rushes within the pond at VP1. One individual was observed swimming to the west of the pond and diving at VP1. One individual was observed swimming and diving to the west of the pond at VP1.
	Herring gull	*Larus argentatus*	0	1	Visit 1: No herring gull were observed during these surveys. Visit 2: One individual was observed flying east over the Survey Area at VP1.

*Annex I species

3.2.4 Breeding Bird Surveys

Table 3-3 and Table 3-4 contain a summary of the birds recorded within the Survey Area during the breeding bird surveys and their status according to the Birds of Conservation Concern in Ireland ('BoCCI'), which is the third assessment of the status of all regularly occurring birds on the island of Ireland [13].

Details on the species that were recorded, their abundance and their behaviours are provided in Table 3-3 and Table 3-4 below.

During the 2023 breeding bird surveys, a total of 26 species were recorded:

- 20 Green-Listed BoCCI non-Annex I species – blackbird, blackcap, blue tit, bullfinch, chaffinch, chiffchaff, dunnock, goldfinch, great tit, jackdaw, little grebe, moorhen, pied wagtail, redpoll, robin, sedge warbler, song thrush, treecreeper and wren; and,
- Six Amber-Listed BoCCI, non-Annex I species were recorded – goldcrest, house sparrow, swallow, willow warbler, mallard and sand martin.

Of the species recorded, three were classified as '*Confirmed Breeding'* - jackdaw, wren, and sand martin (see Table 3-3 below). In addition, 17 other species were classified as '*Possibly Breeding'* and six species were classified as *'Non-breeding'*.

During the 2025 breeding bird surveys, a total of 28 species were recorded:

- 21 Green-Listed BoCCI non-Annex I species – blackbird, blackcap, blue tit, chaffinch, chiffchaff, coal tit, dunnock, great tit, hooded crow, jackdaw, jay, little grebe, mistle thrush, peregrine falcon, pheasant, redpoll, robin, rook, song thrush, woodpigeon and wren; and,
- Six Amber-Listed BoCCI, non-Annex I species were recorded – goldcrest, mallard, sand martin, swallow, willow warbler, grey wagtail and starling.

No Red-listed species were recorded.

Of the species recorded, four were classified as '*Confirmed Breeding*' - blackbird, jackdaw, rook, and sand martin (see Table 3-4 below). In addition, 20 other species were classified as '*Possibly Breeding',* and four species were classified as '*Non-breeding'*.

Table 3-3: Birds Recorded within the Survey Area during the 2023 Breeding Bird Surveys

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded			Notes	Breeding Status
			Visit 1	Visit 2	Visit 3		
Green Listed	Blackbird	*Turdus merula*	5	4	0	Visit 1: One individual was identified calling from within the heath along the northeastern boundary of the Survey Area. One individual was identified calling from within the immature woodland to the north of the Survey Area. One individual was identified calling from within the heath to the north of the Survey Area. Two individuals were calling and flushed from the immature woodland northwest of the Survey Area. Visit 2: One individual was identified flying from the pond towards the buildings south of the Survey Area. One individual was observed calling beside the building southeast of the Survey Area. One individual was identified calling from the oak-birch-holly woodland west of the Survey Area. One individual was identified calling from the immature woodland south of the Survey Area. Visit 3: No blackbirds were recorded during this survey.	Possibly Breeding
	Blue Tit	*Cyanistes caeruleus*	2	2	8	Visit 1: One individual was observed flying over a building to the south of the Survey Area. One individual was observed calling from the oak-birch-holly woodland south of the Survey Area. Visit 2: One individual was observed calling from the oak-birch-holly woodland to the south of the Survey Area. One individual was observed calling from the immature woodland to the west of the Survey Area along the boundary. Visit 3: Five individuals were observed calling and perching within the broadleaved woodland south of the quarry area. Two individuals were observed calling from within the immature woodland east of the Survey Area. One individual was observed calling from the immature woodland east of the pond within the Survey area.	Possibly Breeding
	Blackcap	*Sylvia atricapilla*	8	6	7	Visit 1: Four individuals were observed calling from the broadleaved woodland south of the quarry area. Two individuals were observed calling and perching from within the oak-birch-holly woodland along the western boundary of the Survey Area. One individual was observed calling from	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded			Notes	Breeding Status
			Visit 1	Visit 2	Visit 3		
						within the oak-birch-holly woodland along the southern boundary of the Survey Area. One individual was observed calling from within the broadleaved woodland along the southeastern boundary of the Survey Area behind the building. Visit 2: Two individuals were observed calling/perching and showing territorial behaviour from within the broadleaved woodland to the south of the quarry area. Two individuals were observed calling from within the oak-birch-holly woodland along the southern boundary of the Survey Area. One individual was observed calling from within the heath along the northern boundary of the Survey Area. One individual was observed calling from within the scrub along the northwestern boundary. Visit 3: Three individuals were observed calling from within the immature woodland to the east of the quarry area. Two individuals were observed calling from within the immature woodland to the north of the quarry area. Two individuals were observed calling from within the immature woodland along the northwestern boundary of the Survey Area.	
	Bullfinch	*Pyrrhula pyrrhula*	1	0	0	Visit 1: One individual was observed flying over a building along the southwestern boundary of the Survey Area. Visit 2: No bullfinch were observed during this survey. Visit 3: No bullfinch were observed during this survey.	Non-Breeding
	Chaffinch	*Fringilla coelebs*	6	4	2	Visit 1: Two individuals were observed calling and perching from within the broadleaved woodland along the southwestern Survey Area boundary. One individual was observed flying over a building south of the quarry area. Two individuals were observed calling and perching within the broadleaved woodland south of the quarry area. One individual was observed calling within the immature woodland north of the Survey Area. Visit 2: One individual was observed calling within the scrub in the quarry area. Two individuals were observed calling from the immature woodland along the southeastern boundary. One individual was observed calling from within the immature woodland southeast of the Survey Area.	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded			Notes	Breeding Status
			Visit 1	Visit 2	Visit 3		
						Visit 3: Two individuals were observed perched within the immature woodland east of the Survey Area.	
	Chiffchaff	*Phylloscopus collybita*	14	11	5	Visit 1: Three individuals were observed calling from the scrub within the quarry area. One individual was observed calling within the broadleaved woodland south of the quarry area. Two individuals were observed calling within the immature woodland along the southern boundary. One individual was observed calling from the scrub within the quarry area. Two individuals were observed calling within the immature woodland along the northwestern boundary. Four individuals were observed calling within the immature woodland to the northwest corner of the Survey Area. Visit 2: One individual was observed calling within the quarry area. Two individuals were observed calling within the broadleaved woodland in the southwestern corner of the Survey Area. Two individuals were observed calling within the immature woodland in the southeastern corner of the Survey Area. One individual was observed calling within the immature woodland northeast of the Survey Area. One individual was observed calling within the scrub north of the quarry area. One individual was observed calling by the pond northwest of the Survey Area. Four individuals were observed calling within the immature woodland along the northwestern boundary of the Survey Area. Visit 3: One individual was observed calling within the broadleaved woodland south of the quarry area. One individual was observed calling territorially within the oak-birch-holly woodland along the southern boundary of the Survey Area. One individual was observed calling within the oak-birch-holly woodland along the southern boundary of the Survey Area. Two individuals were observed calling territorially within the immature woodland along the northwestern corner of the Survey Area.	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded			Notes	Breeding Status
			Visit 1	Visit 2	Visit 3		
	Dunnock	*Prunella modularis*	1	3	0	Visit 1: One individual was observed calling within the scrub within the quarry area. Visit 2: Two individuals were observed calling within the scrub southwest of the Survey Area. One individual was observed calling within the broadleaved woodland along the southwestern boundary of the Survey Area. Visit 3: No dunnocks were observed during this survey.	Possibly Breeding
	Goldfinch	*Carduelis carduelis*	2	0	0	Visit 1: Two individuals were observed calling and perching within the immature woodland beside a building southeast of the Survey Area. Visit 2: No goldfinch were observed during this survey. Visit 3: No goldfinch were observed during this survey.	Possibly Breeding
	Great Tit	*Parus major*	3	5	2	Visit 1: Two individuals were observed calling and perching within the oak-birch-holly woodland along the southeastern corner of the Survey Area boundary. One individual was observed calling and perching within the immature woodland along the northern boundary of the Survey Area. Visit 2: Two individuals were observed calling within the scrub in the quarry area. Three possible chicks were observed calling within the immature woodland along the southeastern corner of the Survey Area boundary. Visit 3: Two individuals were observed calling and perching within the immature woodland to the east of the Survey Area.	Possibly Breeding
	Jackdaw	*Coloeus monedula*	1	2	6	Visit 1: One individual was observed calling and perching within a dead tree within the quarry area. Visit 2: Two individuals were observed calling and flying above a building within the quarry area. Visit 3: Six individuals were observed calling and perching within a nest along the quarry face to the south of the Survey Area.	Confirmed Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded			Notes	Breeding Status
			Visit 1	Visit 2	Visit 3		
	Little Grebe	*Tachybaptus ruficollis*	1	0	0	Visit 1: One individual was observed calling within the reedbed in the pond to the north of the Survey Area. Visit 2: No little grebe were observed during this survey. Visit 3: No little grebe were observed during this survey.	Possibly Breeding
	Moorhen	*Gallinula chloropus*	1	0	0	Visit 1: One individual was observed perching on the water within the pond to the northwest of the Survey Area. Visit 2: No moorhen were observed during this survey. Visit 3: No moorhen were observed during this survey.	Non-Breeding
	Pied Wagtail	*Motacilla alba yarrellii*	0	0	1	Visit 1: No pied wagtail were observed during this survey. Visit 2: No pied wagtail were observed during this survey. Visit 3: One individual was observed perching on a building roof within the quarry area to the south of the Survey Area.	Non-Breeding
	Redpoll (Lesser)	*Acanthis cabaret*	1	0	0	Visit 1: One individual was observed calling and flying west in the northwestern corner of the Survey Area. Visit 2: No lesser redpoll were observed during this survey. Visit 3: No lesser redpoll were observed during this survey.	Possibly Breeding
	Robin	*Erithacus rubecula*	7	1	4	Visit 1: Two individuals were observed calling within the scrub within the quarry area. One individual was observed calling and perching within the broadleaved woodland along the southwestern corner of the Survey Area boundary. One individual was observed calling within the immature woodland along the southern boundary of the Survey Area. One individual was observed calling within the immature woodland northeast of the Survey Area. One individual was observed perching within the immature woodland to the northwest along the Survey Area boundary. One individual was	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded			Notes	Breeding Status
			Visit 1	Visit 2	Visit 3		
						observed calling within the immature woodland to the northwest along the Survey Area boundary. Visit 2: One individual was observed calling within the scrub in the quarry area. Visit 3: One individual was observed within the immature woodland along the southern Survey Area boundary. Two individuals were observed calling territorially within the immature woodland along the northern Survey Area boundary. One individual was observed perching and calling territorially within the immature woodland along the northwestern corner of the Survey Area boundary.	
	Rook	*Corvus frugilegus*	6	0	0	Visit 1: Six individuals were calling and perching in vegetation along the rock face within the quarry area to the south of the Survey Area. Visit 2: No rook were observed during this survey. Visit 3: No rook were observed during this survey.	Possibly Breeding
	Sedge Warbler	*Acrocephalus schoenobaenus*	2	0	0	Visit 1: Two individuals were observed calling aggressively / territorially and perching within the immature woodland to the north of the Survey Area. Visit 2: No sedge warbler were observed during this survey. Visit 3: No sedge warbler were observed during this survey.	Possibly Breeding
	Song Thrush	*Turdus philomelos*	1	0	2	Visit 1: One individual was observed calling from within scrub along the quarry edge. One individual was observed calling by the pond to the northwest of the Survey Area. Visit 2: No song thrush were observed during this survey. Visit 3: Two individuals were observed calling territorially within the immature woodland along the northwestern corner of the Survey Area boundary.	Possibly Breeding
	Treecreeper	*Certhia familiaris*	0	0	2	Visit 1: No treecreeper were observed during this survey.	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded			Notes	Breeding Status
			Visit 1	Visit 2	Visit 3		
						Visit 2: No treecreeper were observed during this survey. Visit 3: Two individuals were observed calling within the broadleaved woodland along the southwestern boundary of the Survey Area.	
	Wren	*Troglodytes troglodytes*	24	25	10	Visit 1: One individual was observed calling within the broadleaved woodland southwest of the Survey Area. One individual was observed calling within the broadleaved woodland along the southwestern boundary of the Survey Area. Three individuals were observed calling within the immature woodland in the northwestern corner of the Survey Area. Five individuals were observed calling within the oak-birch-holly woodland along the southern Survey Area boundary. Five individuals were observed calling within the immature woodland along the southeastern Survey Area boundary. One individual was observed calling within the immature woodland northeast of the Survey Area. Four individuals were observed calling within the immature woodland north of the Survey Area. Four individuals were observed calling within the immature woodland northwest of the Survey Area. Visit 2: One individual was observed calling within the scrub in the quarry area. Four individuals were observed calling within the broadleaved woodland southwest of the Survey Area. Two individuals were observed calling within the oak-birch-holly woodland along the southern boundary of the Survey area. Three individuals were observed calling within the immature woodland along the southeastern Survey Area boundary. One individual was observed calling by a building along the southeastern Survey Area boundary. Two individuals were observed calling within the scrub northeast of the Survey Area. One individual was observed calling within the scrub along the northern boundary of the Survey Area. One individual was observed calling by the pond along the northern Survey Area boundary. Three individuals were observed calling within the scrub along the northern boundary of the Survey Area. Two individuals were observed calling within heath along the northern Survey Area boundary. One individual was observed calling within the scrub northwest of the Survey Area. One individual was observed calling by the pond northwest of the Survey Area. Six individuals (including two chicks) were observed calling from within the immature woodland in the northwestern corner of the Survey Area.	Confirmed Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded			Notes	Breeding Status
			Visit 1	Visit 2	Visit 3		
						Visit 3: Two individuals were observed calling territorially within the oak-birch-holly woodland south of the Survey Area. Three individuals were observed calling and perching within the woodland in the southwestern corner of the Survey Area. One individual was observed calling within the oak-birch-holly woodland along the southern Survey Area boundary. Two individuals were observed calling within the immature woodland along the northern boundary of the Survey Area. One individual was observed calling within heath along the northern Survey Area boundary. One individual was observed calling within the immature woodland along the northwestern boundary of the Site.	
Amber Listed	Goldcrest	*Regulus regulus*	1	1	2	Visit 1: One individual was observed calling within the oak-birch-holly woodland along the southern boundary of the Survey Area. Visit 2: One individual was observed calling within the oak-birch-holly woodland along the southeast corner of the Survey Area boundary. Visit 3: Two individuals were observed calling within the oak-birch-holly woodland along the western boundary of the Site.	Possibly Breeding
	House Sparrow	*Passer domesticus*	2	0	0	Visit 1: Two individuals were observed perching within the immature woodland along the northwestern corner of the Survey Area boundary. Visit 2: No house sparrow were observed during this survey. Visit 3: No house sparrow were observed during this survey.	Non-Breeding
	Mallard	*Anas platyrhynchos*	1	0	0	Visit 1: One female individual was observed flying south over the quarry area. Visit 2: No mallard were observed during this survey. Visit 3: No mallard were observed during this survey.	Non-Breeding
	Sand Martin	*Riparia riparia*	0	19	6	Visit 1: No sand martins were observed during this survey. Visit 2: One individual was observed flying south over the pond and the building. 10-15 individuals were observed calling and nesting within the sand and gravel pit south of the Survey Area. More than 20 holes were noted	Confirmed Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded			Notes	Breeding Status
			Visit 1	Visit 2	Visit 3		
						within the sand and gravel pit. Three individuals were observed calling and foraging by the pond northeast of the Survey Area. Visit 3: Two individuals were observed flying southeast towards a nest along the access track along the southern boundary of the Site. Two individuals were observed flying within the oak-birch-holly woodland along the southern Survey Area boundary. Two individuals were observed calling within the immature woodland along the northwestern corner of the Survey Area boundary.	
	Swallow	*Hirundo rustica*	10	10	0	Visit 1: Eight individuals were observed flying overhead southwest of the Survey Area. Two individuals were observed flying west within the southwestern corner of the Survey Area. Visit 2: Four individuals were observed foraging within the quarry area southeast of the Survey Area. Six individuals were observed foraging by the pond southeast of the Survey Area. Visit 3: No swallows were observed during this survey.	Non - Breeding
	Willow Warbler	*Phylloscopus trochilus*	16	13	4	Visit 1: One individual was observed calling within the scrub within the quarry area south of the Survey Area. One individual was observed calling within the broadleaved woodland within the quarry area to the southwest of the Survey Area. One individual was observed calling within the oak-birch-holly woodland along the southeastern corner of the Survey Area. Three individuals were observed calling within the immature woodland northeast of the Survey Area. Three individuals were observed calling within the immature woodland north of the Survey Area. One individual was observed calling within the immature woodland along the northern Survey Area boundary. Six individuals were observed calling within heath along the northern boundary of the survey area. Visit 2: Two individuals were observed calling from within the scrub within the quarry area to the southeast of the Survey Area. Two individuals were observed calling within the scrub to the northeast of the Survey Area. Two individuals were observed calling within heath northwest of the Survey Area. Two individuals were observed calling by the pond by the northwestern	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded			Notes	Breeding Status
			Visit 1	Visit 2	Visit 3		
						corner of the Survey Area. Five individuals were observed calling within the immature woodland along the northwestern boundary of the Survey Area. Visit 3: Two individuals were observed calling within the broadleaved woodland in the quarry area to the south of the Survey Area. Two individuals were observed calling within the immature woodland along the northwestern boundary of the Survey area	

Table 3-4: Birds Recorded within the Survey Area during the 2025 Breeding Bird Surveys

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded		Notes	Breeding Status
			Visit 1	Visit 2		
Green Listed	Blackbird	*Turdus merula*	5	4	Visit 1: One individual was observed foraging on the ground within the quarry along the western boundary of the Site. Another was observed calling within the scrub along the access track south of the Survey Area. One male was observed perching within the immature woodland along the northeastern Survey Area boundary. Two individuals were observed carrying nesting material and calling within the immature woodland along the northern Survey Area boundary. Visit 2: Two individuals were identified nesting and calling within the woodland to the west of the Survey Area. One male was flushed from the willow to the south of the Survey Area, and one individual was identified flying within the heath to the north of the Survey Area.	Confirmed Breeding
	Blue Tit	*Cyanistes caeruleus*	5	2	Visit 1: Two individuals were observed calling within the immature woodland along the eastern boundary of the Site. Two individuals were perching within the scrub to the south of the Survey Area. One individual was observed perching within the oak-birch-holly woodland south of the quarry area. Visit 2: One individual was observed perching and calling within the broadleaved woodland to the southwest of the Survey Area. One individual was observed calling and perching within the scrub along the quarry edge to the north of the Survey Area.	Possibly Breeding
	Blackcap	*Sylvia atricapilla*	1	2	Visit 1: One individual was observed calling within the immature woodland to the north of the Survey Area along the access track. Visit 2: Two individuals were observed calling from within the oak-birch-holly woodland to the southeast of the Survey Area.	Possibly Breeding
	Chaffinch	*Fringilla coelebs*	0	1	Visit 1: No chaffinches were observed during this survey. Visit 2: One individual was observed calling within the oak-birch-holly woodland along the southern Survey Area boundary.	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded		Notes	Breeding Status
			Visit 1	Visit 2		
	Chiffchaff	*Phylloscopus collybita*	13	18	Visit 1: Two individuals were observed singing within the willow within the southwestern corner of the Survey Area. One individual was observed signing within the oak-birch-holly woodland along the southern Survey Area boundary. One individual was observed calling along a cliff east of the Survey Area. Three individuals were observed calling within the immature woodland east of the Survey Area along the access track. One individual was observed calling within the immature woodland northeast of the Survey Area. Five individuals were observed calling within the immature woodland to the north of the Survey Area along the access track. Visit 2: Three individuals were observed calling within the broadleaved woodland southwest of the Survey Area. Five individuals were observed calling within the immature woodland along the edge of the quarry area to the northeast of the Survey Area. Two individuals were observed calling from within the oak-birch-holly woodland along the access track on the southern boundary of the Survey Area.	Possibly Breeding
	Coal Tit	*Periparus ater*	3	1	Visit 1: Three individuals were observed perching and calling within oak-birch-holly woodland south of the Survey Area. Visit 2: One individual was observed perching and calling within the immature woodland northeast of the quarry area.	Possibly Breeding
	Dunnock	*Prunella modularis*	1	1	Visit 1: One individual was observed calling within immature woodland along the eastern boundary of the Site. Visit 2: One individual was observed calling within the oak-birch-holly woodland along the southern boundary of the Site.	Possibly Breeding
	Great Tit	*Parus major*	2	3	Visit 1: One individual was observed calling and perching within the oak-birch-holly woodland to the southeastern corner of the Survey Area. One individual was observed calling and perching within the immature woodland along the eastern boundary of the Site.	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded		Notes	Breeding Status
			Visit 1	Visit 2		
					Visit 2: Two individuals were observed calling from within the woodland along the southwestern boundary of the Survey Area. One individual was observed calling within the scrub along the access track northeast of the Survey Area.	
	Hooded Crow	*Corvus cornix*	1	0	Visit 1:One individual was observed perching and foraging within the immature woodland north of the Survey Area. Visit 2:No hooded crows were observed during this survey.	Non - Breeding
	Jackdaw	*Coloeus monedula*	25	29	Visit 1: Ten individuals were observed perching on the northern quarry cliff face and carrying nesting material. 12 individuals were observed perching on the quarry cliff face within the centre of the quarry carrying nesting material. Three individuals were observed perching along the northern quarry cliff face Visit 2: One individual was observed flying east over broadleaved woodland within the southwestern area of the Survey Area. Four individuals were observed foraging within the oak-birch-holly woodland along the southern boundary of the Survey Area. Seven individuals were observed calling and perching within oak-birch-holly woodland south of the Survey Area. 15 individuals were observed alarm calling, perching and foraging within the quarry north of the Survey Area. One individual was observed carrying nesting material within scrub along the access track north of the Survey Area.	Confirmed Breeding
	Jay	*Garrulus glandarius*	0	1	Visit 1: No jays were observed during this survey. Visit 2: One individual was observed calling within the oak-birch-holly woodland along the southern Survey Area boundary.	Possibly Breeding
	Little Grebe	*Tachybaptus ruficollis*	2	2	Visit 1: Two individuals were observed on the pond north of the Survey Area. Visit 2: One individual was observed wading and calling within a pond north of the Survey Area. One individual was observed wading and perching within a pond northwest of the Survey Area.	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded		Notes	Breeding Status
			Visit 1	Visit 2		
	Mistle Thrush	*Turdus viscivorus*	0	1	Visit 1: No mistle thrush were observed during this survey. Visit 2: One individual was observed calling within the oak-birch-holly woodland along the western Survey Area boundary.	Possibly Breeding
	Peregrine Falcon	*Falco peregrinus*	1	1	Visit 1: One individual was flushed from within the immature woodland and flew north Visit 2: One individual was observed agitated, calling and foraging on the quarry floor east of the Survey Area.	Possibly Breeding
	Pheasant	*Phasianus colchicus*	1	0	Visit 1:One individual was observed calling within the immature woodland along the northern Survey Area boundary. Visit 2:No pheasants were recorded during this survey.	Possibly Breeding
	Redpoll (Lesser)	*Acanthis cabaret*	3	5	Visit 1: Three individuals were observed singing and were then flushed onto the access track north of the Survey Area. Visit 2: Three individuals were observed perching and calling within the oak-birch-holly woodland along the southeastern Survey Area boundary. Two individuals were observed calling within the scrub along the northeastern Survey Area boundary.	Possibly Breeding
	Robin	*Erithacus rubecula*	1	5	Visit 1: Two individuals were observed alarm calling within the scrub in the quarry area. Visit 2: One individual was observed calling within the scrub in the quarry area. One individual was observed calling within the oak-birch-holly woodland along the western boundary of the Survey Area. One individual was observed calling within the scrub in the quarry area. One individual was observed calling within the immature woodland along the access track to the east of the Survey Area. One individual was observed calling and perching within the immature woodland along the access track north of the Survey Area.	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded		Notes	Breeding Status
			Visit 1	Visit 2		
	Rook	*Corvus frugilegus*	1	2	Visit 1: One individual was observed flying west over the quarry carrying nesting material. Visit 2: No rooks were recorded during Visit 2.	Confirmed Breeding
	Song Thrush	*Turdus philomelos*	1	4	Visit 1: One individual was observed calling within the immature woodland along the eastern Survey Area boundary. Visit 2: One individual was observed calling within the oak-birch-holly woodland along the western Survey Area boundary. Three individuals were observed calling within the scrub along the access track along the northern Survey Area boundary.	Possibly Breeding
	Wood Pigeon	*Columba palumbus*	3	3	Visit 1: Two individuals were observed perching within the oak-birch-holly woodland along the access track south of the Survey Area. One individual was observed calling within the immature woodland along the northern Survey Area boundary. Visit 2: Two individuals were observed calling within the oak-birch-holly woodland along the western boundary of the Survey Area. One individual was observed calling along the access track within the eastern corner of the Survey Area.	Possibly Breeding
	Wren	*Troglodytes troglodytes*	7	11	Visit 1:Two individuals were observed calling within the broadleaved woodland within the southwestern corner of the Survey Area. Two individuals were observed alarm calling within the scrub in the quarry area. One individual was observed calling within the scrub in the northeastern corner of the Survey Area. Two individuals were observed perching and calling within the immature woodland along the northern Survey Area boundary. Visit 2: Three individuals were observed calling from within the broadleaved woodland along the southwestern boundary of the Survey Area. Four individuals were observed calling from within the scrub in the quarry area to the south of the Survey Area. Three individuals were observed calling from within the scrub along the access track to the north west of the Survey Area. One individual was	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded		Notes	Breeding Status
			Visit 1	Visit 2		
					observed calling from within the scrub along the access track on the southern boundary of the Survey Area.	
Amber Listed	Goldcrest	*Regulus regulus*	2	1	Visit 1: One individual was observed singing within the oak-birch-holly woodland along the southwestern Survey Area boundary. One individual was observed calling within the immature woodland to the east of the Survey Area. Visit 2: One individual was observed calling within the oak-birch-holly woodland along the southeastern boundary of the Site.	Possibly Breeding
	Mallard	*Anas platyrhynchos*	0	2	Visit 1: No mallards were observed during this survey. Visit 2: One male was observed flying north within the quarry area. Another male was observed foraging within the pond north of the Survey Area.	Non-Breeding
	Sand Martin	*Riparia riparia*	3	6	Visit 1: Three individuals were observed foraging within the quarry to the southeast of the Survey Area. Visit 2: Six individuals were observed foraging within the woodland along the southern boundary of the Site. A total of 47 sand martin holes were observed within the stockpiled materials along the southern Survey Area boundary.	Confirmed Breeding
	Swallow	*Hirundo rustica*	1	2	Visit 1: One individual was observed perching along the access track north of the Survey Area. Visit 2: Two individuals were observed foraging within the quarry area.	Non-Breeding
	Willow Warbler	*Phylloscopus trochilus*	42	24	Visit 1: Four individuals were observed calling within the scrub in the quarry area. Two individuals were observed perching and foraging on bare ground northeast of the Survey Area. 17 individuals were observed perching, foraging and calling within willow, scrub and wet grassland areas to the northeast of the Survey Area. Five individuals were observed calling and perching within immature woodland along the northern Survey Area boundary. 14 individuals were observed calling	Possibly Breeding

BoCCI Conservation Status (EU Birds Directive Annex Species)	Species	Latin Name	Number Recorded		Notes	Breeding Status
			Visit 1	Visit 2		
					perching and foraging within the immature woodland northeast of the Survey Area. Visit 2: One individual was observed perching on the ground along the western boundary of the Site. One individual was observed foraging along the access track north of the quarry area. Five individuals were observed calling within the immature woodland along the access track north of the Survey Area. Six individuals were observed calling within the immature woodland north of the Survey Area. Six individuals were observed perching and calling within the scrub north of the Survey Area along the access track. Five individuals were observed perching and calling within the immature woodland along the northern boundary of the Survey Area.	
	Grey Wagtail	*Motacilla cinerea*	0	2	Visit 1: No grey wagtails were observed during this survey. Visit 2: Two individuals were observed perching within the oak-birch-holly woodland along the southeastern boundary of the Site.	Non-Breeding
	Starling	*Sturnus vulgaris*	2	0	Visit 1: One individual was observed perching and mimicking a peregrine falcon within the oak-birch-holly woodland south of the Survey Area. One individual was observed calling to the east of the Survey Area, along the access track. Visit 2: No starling were observed during this survey.	Possibly Breeding

3.2.5 Peregrine Falcon Surveys

As previously outlined, the quarry features steep-sided cliff faces, which provide suitable nesting habitats for peregrine falcons. Therefore, peregrine falcon surveys were undertaken to identify any peregrine falcon activity within the quarry during the breeding season and to determine if this species was breeding within the Survey Area. These surveys were targeted at the quarry faces within the Survey Area and also recorded activity within the Study Area.

17th May 2023 Survey

High levels of peregrine activity were observed during this survey. One adult male peregrine falcon was observed perched within the centre of the quarry near the vantage point at 10:00. The bird remained there until 10:12 before flying east over the quarry. At 10:03, a female peregrine falcon was observed alarm calling northwest of the quarry. Shortly after, at 10:07, a female flew south along the quarry face to a potential nest. At 10:18, a female flew west from the potential nest. At 10:24, an adult male flew to the potential nest and was observed calling.

At 10:30, a female landed in the potential nest with food and then flew south along the quarry face. At 10:39, a male flew east and out of the Survey Area. At 10:54, an adult female flew in from the east and landed on the potential nest. At 11:45, an adult female was perched and calling from the potential nest. At 11:47, an adult female was alarm calling from the potential nest, and alarm called again at 11:47 and 11:50. At 12:28, an adult peregrine falcon was observed flying and hovering west from the potential nest along the quarry face. At 12:31, an adult was observed calling from the potential nest. At 12:37, an adult was observed calling from the potential nest. At 12:43, an adult flew into the potential nest from the east with food and gave it to the adult that was occupying the potential nest.

7th June 2023 Survey

High levels of peregrine activity was observed during the survey on 6th June 2023. At 10:00, two peregrine falcon chicks (four to five weeks old) were observed on a nest along the northwestern quarry face. At 10:01, one adult peregrine falcon was observed calling and flying from the west of the Survey Area before landing out of the Survey Area. At 10:11, one adult peregrine falcon landed to the north of the quarry and was calling. Large amounts of whitewash were present at this location. At 10:33, two peregrine falcon chicks move 5 metres from the nest to the west.

At 10:46, one adult female peregrine falcon caught a jackdaw and brought it to the nest and proceeded to feed the chicks. At 11:02, one adult male peregrine falcon landed on the nest and was feeding on the jackdaw and feeding the chicks. The adult female flew off and landed northeast of the nest and was feeding on the other half of the jackdaw. At 11:09, an adult female peregrine falcon flew from northeast of the nest, where she was feeding and calling loudly within the tarmacadam plant. The male flew west out of the Survey Area.

At 11:11, one adult peregrine falcon was observed chasing a bird and heading north along the edge of the quarry. At 11:25 and 11:35, one adult was heard calling northwest of the vantage point. At 11:49, one adult was heard calling north of the vantage point. At 11:51, one adult was heard calling west of the vantage point. At 11:57, one adult was calling very faintly west of the vantage point. At 12:05, one peregrine falcon was heard calling north of the vantage point. At 12:11, one peregrine falcon was heard calling west of the vantage point. And again at 12:21. This continued at 12:25 and 12:42, although the call was faint. At 12:47, a louder call was heard.

14th April 2025 Survey

High levels of peregrine and raptor activity were observed during the survey on 14th April 2025. Two ravens were first observed at 10:22 flying in and perching along the northwestern cliff face, where they were also heard calling from a tree. At 10:30, two more ravens were recorded

calling. At 10:37, two ravens were again present, and shortly afterwards, at 10:56, one raven landed and perched before both circled overhead and flew north. One bird landed again at the original location.

At 11:05, a single adult peregrine falcon appeared from behind a rock and gave an alarm call. At 11:15, a peregrine was observed calling and then landed from the north. At 11:17, a kestrel flew into a scree slope. At 11:48, a kestrel was mobbed by jackdaws near a perch close to a nest site, then flew north and out of sight. At 12:06, a kestrel was again seen landing on a cliff to the north of the Survey Area, where it was mobbed by jackdaws.

At 13:00, a kestrel was seen on the nest, where it had been since 12:06, occasionally entering and exiting. At the same time, a peregrine was observed incubating on a nest with signs suggesting the possible presence of chicks. A large nest was also noted to the south of the kestrel nest.

23rd April 2025 Survey

High levels of peregrine activity were observed during the survey on 24th April 2025. The first observation was at 10:10, when a female peregrine flew into a quarry ledge and called. No nest was visible. At 10:15, the female peregrine took off and flew west. At 11:07, a peregrine was seen perched and calling from a tree to the north of the Survey Area. At 11:26, the same peregrine was observed flying west.

At 11:51, a kestrel flew from the south past a nest and into the heathland. At 12:07, one peregrine flew in from the south and landed in the same tree as was previously noted to the north of the Survey Area. At 12:18, a second peregrine flew in from the north and landed along the quarry cliff face to the northeast of the Survey Area. At 12:24, two peregrines flew from the tree to the north of the Survey Area, to the quarry cliff face. One peregrine attempted to land on the cliff edge twice before the peregrine flew north. At 12:29, one male peregrine landed at the top of the cliff face to the northeast of the Survey Area. One female was recorded perched within a tree to the north of the Survey Area from 12:07 until the end of the survey. This peregrine was alarm calling from 12:31 onwards.

4 SURVEY AREA ASSESSMENT

During the winter and breeding bird surveys undertaken at the Survey Area, a total of 35 bird species were recorded. This number also includes birds observed flying over the Survey Area during the surveys.

4.1 Winter Bird Assessment

As mentioned in Section 3.2.1, the Survey Area comprises a combination of an inactive quarry, areas of woodland and immature woodland, scrub, dry heath, recolonising bare ground, two dystrophic lakes, and artificial ponds. The quarry waterbodies were considered to provide suitable habitat for wintering wetland bird species.

However, it should be noted that the Survey Area has an active tarmacadam plant within it and is currently exposed to anthropogenic disturbances.

During the winter bird surveys, a total of ten bird species were recorded. No species were recorded during the surveys in numbers that would be considered of national or international importance.

Following a review of I-WeBS data, only three species were recorded at numbers of national importance, coot, gadwall and little grebe. Of these species, coot and little grebe were recorded on the Survey Area; however, they were recorded in very low numbers. Therefore, it is considered that the Survey Area is of very low significance for birds associated with the Ballynacarriga Lake I-WeBS subsite.

Overall, there was limited bird activity noted on the waterbodies during the surveys. Mallard were the most abundant species recorded during the surveys and were seen on the lakes exhibiting a range of behaviours, including flushing, flying, and landing on the lakes. Therefore, it can be considered that, given the presence of Amber-listed bird species, the Survey Area is of Local Importance (High Value). However, given the fact that the species within the Survey Area were only recorded in low numbers, the Survey Area is not considered to be of significant importance for any specific wintering bird species.

4.2 Breeding Bird Assessment

During the 2023 breeding bird surveys, a total of 27 bird species were identified within the Survey Area during the breeding season.

Of the species recorded within the Study Area in 2023 and 2025, five were classified as ‘Confirmed Breeding, blackbird, jackdaw, rook, sand martin and wren (see Table 3-3 and 3-4). In addition, 22 other species were classified as ‘Possibly Breeding’, and eight species were classified as ‘Non-breeding’.

Of the species that were confirmed to be breeding on-site, it was noted that the primary habitats utilised were:

- The quarry cliff faces – jackdaw were noted nesting in this habitat and sand martin were noted entering nest holes;
- Immature woodland in the northern section of the Survey Area – blackbird and wren were both recorded as confirmed breeding in this habitat.

In addition, a number of species were recorded as possibly breeding within the scrub and vegetation within the Survey Area.

4.3 Peregrine Falcon

The quarry walls provide a suitable nesting habitat for peregrine falcon. Peregrine falcon were recorded during the surveys in the north of the quarry. Furthermore, the presence of chicks and a nest during the 2023 surveys within the Survey Area confirms breeding.

It is therefore considered that the Survey Area is a site of Local Importance (High Value), given the presence of a peregrine falcon nest in the cliffs and suitable foraging habitat.

5 CONCLUSIONS

A bird suitability assessment was undertaken at the Survey Area in September 2023, and following this, wintering bird surveys were undertaken in the 2023/2024 winter season and breeding peregrine falcon surveys and breeding bird surveys were undertaken in the 2023 and 2025 breeding seasons.

All surveys have been completed in accordance with recent recommended best practice guidance and by suitably qualified and experienced ecologists, and therefore, the survey effort is deemed appropriate for the Survey Area.

Based on the surveys undertaken, it can be concluded that the Survey Area is considered to be a site of Local Importance (High Value), given the presence of a peregrine falcon nest in the cliffs and Amber-listed species within the Survey during both the wintering and breeding seasons.

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Murray Brothers Tarmacadam Ltd

APPENDIX 14.5
OSI CHARACTERISTIC SHEET

VOLUME III
APPENDICES

FEBRUARY 2026

ORDNANCE SURVEY OF IRELAND.

CHARACTERISTIC SHEET

FOR MAPS ON A SCALE OF

1:10,560 or 6 Inches to 1 Mile and 1:2,500 or 25·344 Inches to 1 Mile.

BOUNDARIES

SCALES

	1:10,560 or 6" to 1 Mile.	1:2,500 or 25·344" to 1 Mile.
Counties		
Baronies		
Parishes (only shown in County Boros. & Urban Dists.)		
Townlands		
Counties & Baronies		
Baronies & Parishes		
Parishes & Townlands		
Counties, Baronies, Parishes & Townlands		
County Boroughs, Urban Districts, & Towns (when not coincident with other Boundaries)	(Described)	(Described)
Wards (only shown in County Boros.)		
When Centre of River		C.R.
When Centre of Stream		C.S.
When Side of River		S.R. S.R.
When Side of Stream		S.S. S.S.
When Centre of Road		C.R.
When Centre of Wall or Fence		C.W. C.F.
When Face of Wall or Fence		F.W. F.F.
When 6' Root of Hedge		6' R.H.

WRITINGS

Plans published prior to 1938.

*BARONIES
PARISHES
TOWNLANDS
Co BOROUGHS
MARKET TOWNS
Villages Villages (Important)
Workhouses
Bridges, Public Buildings, Churches.
RAILWAYS,
Locks, Manufactories, Bridges, &c.
PARKS
BAYS & HARBOURS
NAVIGABLE or TIDAL RIVERS
Smaller Rivers, Brooks.
Antiquities
Area Figures
4·370
Bench Marks ↑ B.M. 5·47
Minor Altitudes · 121
Initial Letters to Small Objects.
M.P Mile Post M.S Mile Stone
S.P Signal Post S.B. Signal Box

Plans published subsequent to 1938.

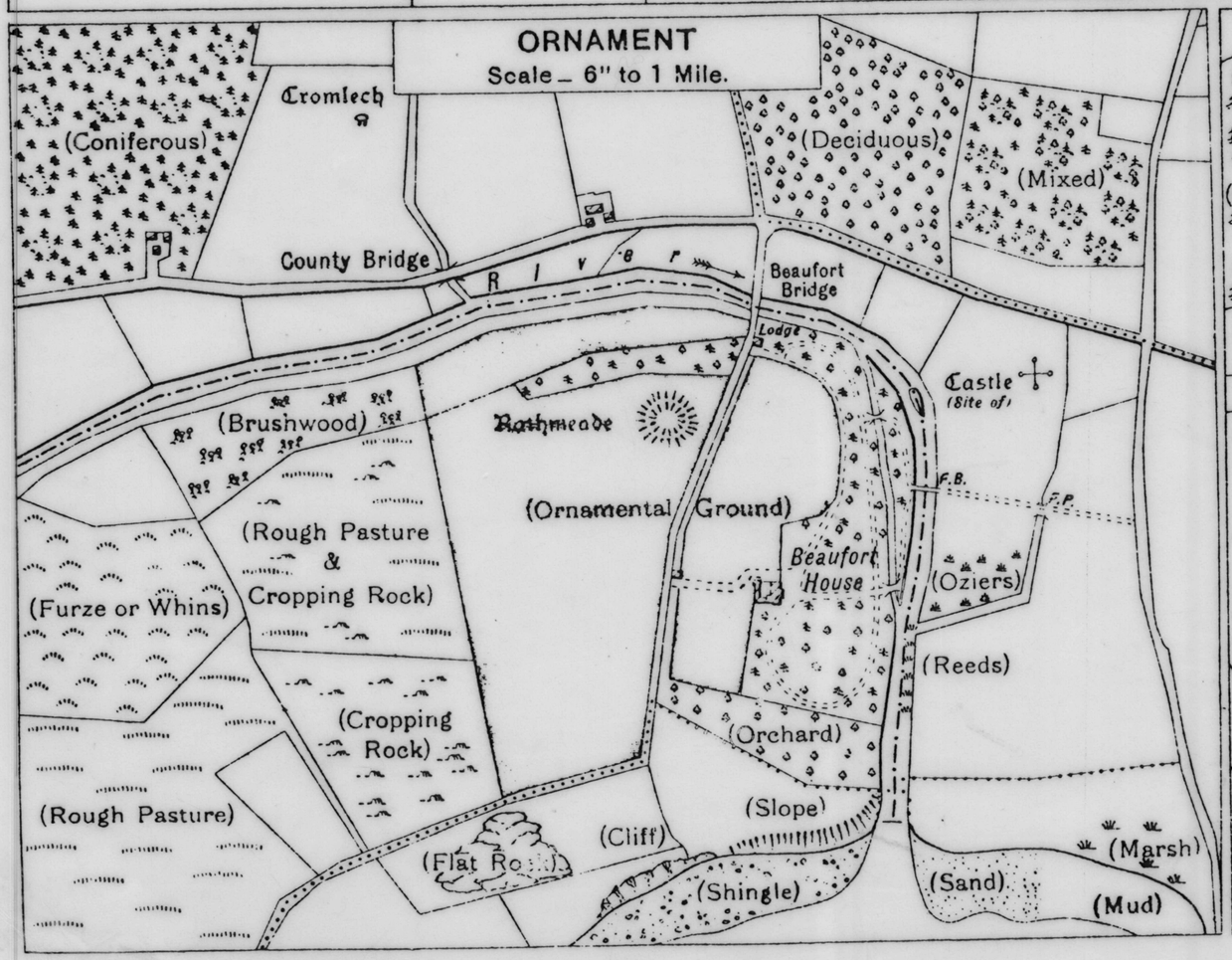
*BARONIES
PARISHES
TOWNLANDS
Co BOROUGHS
MARKET TOWNS
Villages Villages (Important)
County Homes
Bridges, Public Buildings, Churches.
RAILWAYS,
Manufactories, Locks.
PARKS
BAYS & HARBOURS
NAVIGABLE or TIDAL RIVERS
Smaller Rivers, Brooks.
Antiquities
Area of parcels given in Statute Acres, thus 4·370
Brace indicating that the enclosures so connected are included in the same area
Bench Marks ↑ B.M. 5·47
Minor Altitudes + 121
Initial Letters to Small Objects.
M.P Mile Post M.S Mile Stone
S.P Signal Post S.B. Signal Box

These Examples vary in Size and Extent according to the Importance of the District and Object to which they refer.

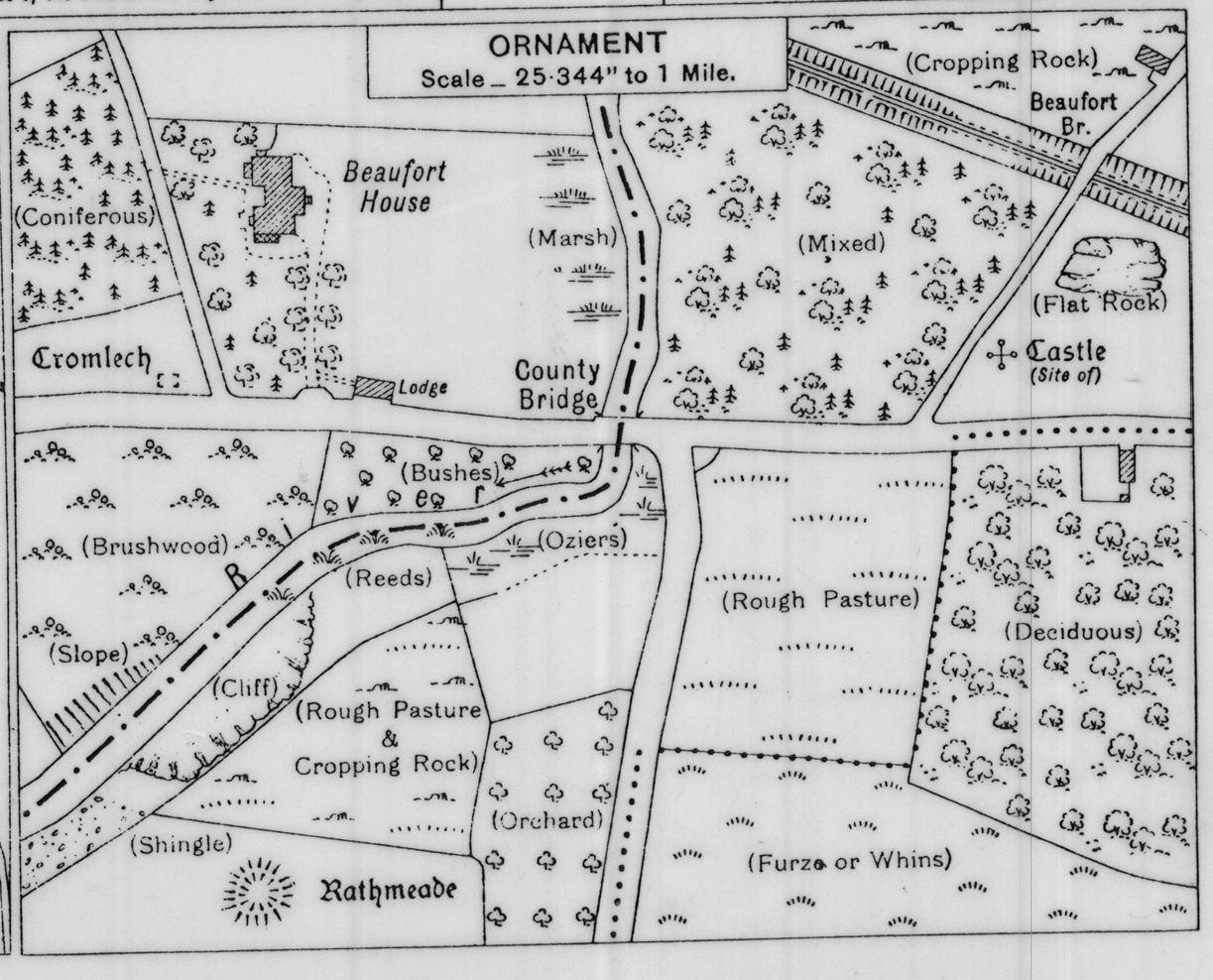
SYMBOLS

Bridges
Weirs or Dams
Ferries
Fords
Canals — Cutting — Embankment
Railways
Tunnels
Light Railways
1st Class Roads
2nd Class Roads
3rd Class Roads
Unfenced Roads
Quarries
Gravel Pits
Forts & Mounds
Wells & Springs
Pumps
Trigonometrical Station △
Contours 200 (Black)
" 200 (Red)

ORNAMENT
Scale – 6" to 1 Mile.



ORNAMENT
Scale – 25·344" to 1 Mile.



* Character used when entirely on body of Sheet.

Murray Brothers Tarmacadam Ltd

APPENDIX 14.6
JAPANESE KNOTWEED MANAGEMENT PLAN

VOLUME III
APPENDICES

FEBRUARY 2026

February 2026

Japanese Knotweed Management Plan

Ardcahan Quarry

On behalf of

Murray Brothers Tarmacadam Ltd.

MALONE O'REGAN ENVIRONMENTAL

QUALITY
I.S. EN ISO 9001:2015
NSAI Certified

MALONE O'REGAN

Form ES - 04

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Job Number: E2049

Prepared By: Annie Coady **Signed:** Annie Coady

Checked By: Dyfrig Hubble **Signed:**

Approved By: Dyfrig Hubble **Signed:**

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
01	18/02/2026	JK Mgt. Plan	Final	AC	DH	DH

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Japanese Knotweed Management Plan

Ardcahan Quarry

Murray Brothers Tarmacadam Ltd.

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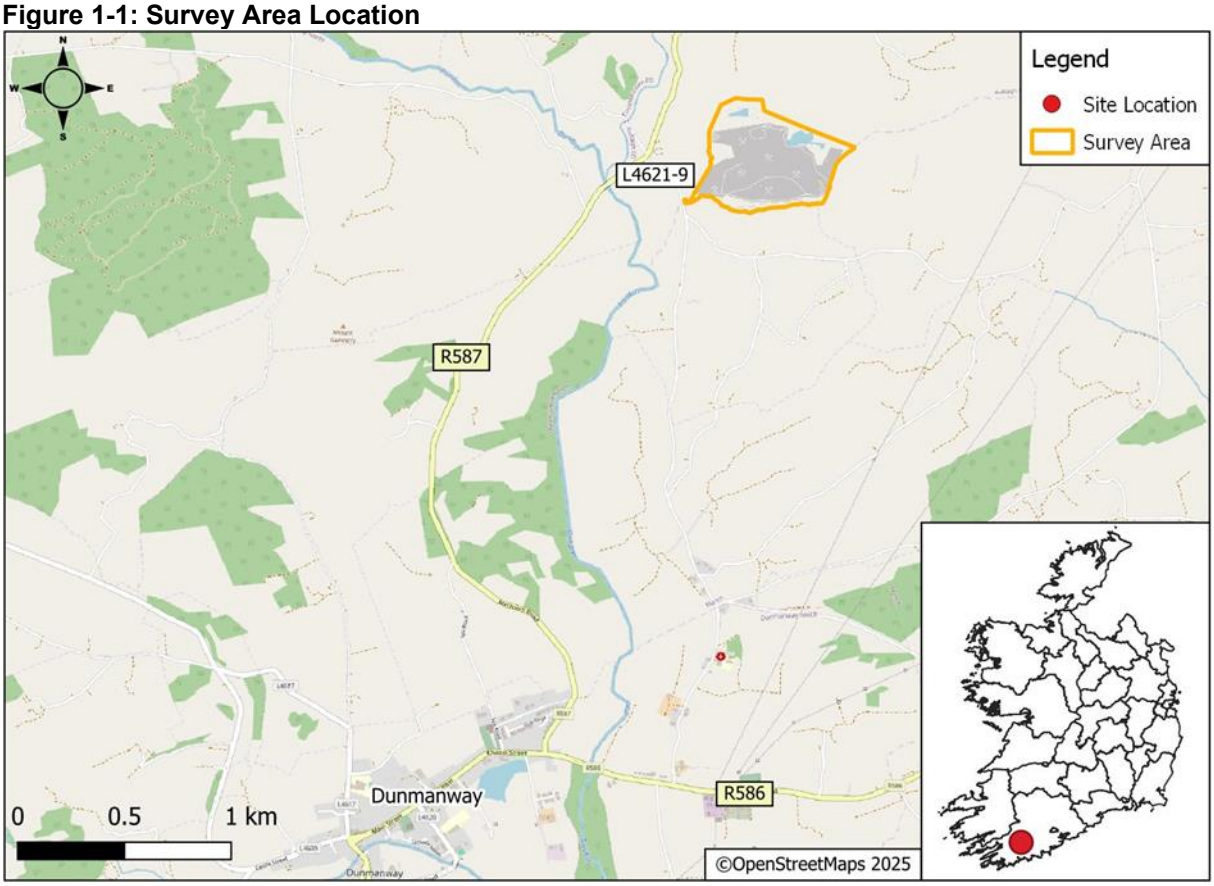
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Plate 3-2: JK in the southwest of the Site 8

1 INTRODUCTION

1.1 Background

Malone O'Regan Environmental ('MOR Environmental') was commissioned McCutcheon Halley Chartered Planning Consultants on behalf of Murray Brothers Tarmacadam Ltd. ('the Applicant') to undertake an assessment of Japanese knotweed (*Reynoutria japonica*) ('JK'), and prepare a JK Management Plan at Ardcahan Quarry and associated lands at Dunmanway, Co. Cork (ITM OS Reference W 25061 55898) ('the Survey Area'). The location of the Survey Area is shown in Figure 1-1.

Figure 1-1: Survey Area Location



1.2 Statement of Authority

This report was approved by Mr. Dyfrig Hubble, Associate Director - Ecologist. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management ('CIEEM'). Dyfrig has over 18 years' experience working in the ecological consultancy sector and has extensive experience in undertaking invasive species surveys, preparing invasive species management plans, supervising the implementation of these plans and monitoring works.

1.3 Aims of the JK Management Plan

The principal aim of this JK Management Plan is to remediate the JK located within the Survey Area in order to safeguard existing operations and any future developments at the Survey Area and to ensure that there will be no unintentional spread of JK during any operations or future works.

The key objectives of this JK Management Plan are to:

- Identify and map all locations on site where JK is present;

- Identify the best method for managing and controlling JK on the Survey Area with regard to the existing operations;
- Provide an outline of measures which should be implemented as a matter of priority to prevent any potential spread of JK on the Survey Area; and,
- Prevent any and all unintentional spread of JK.

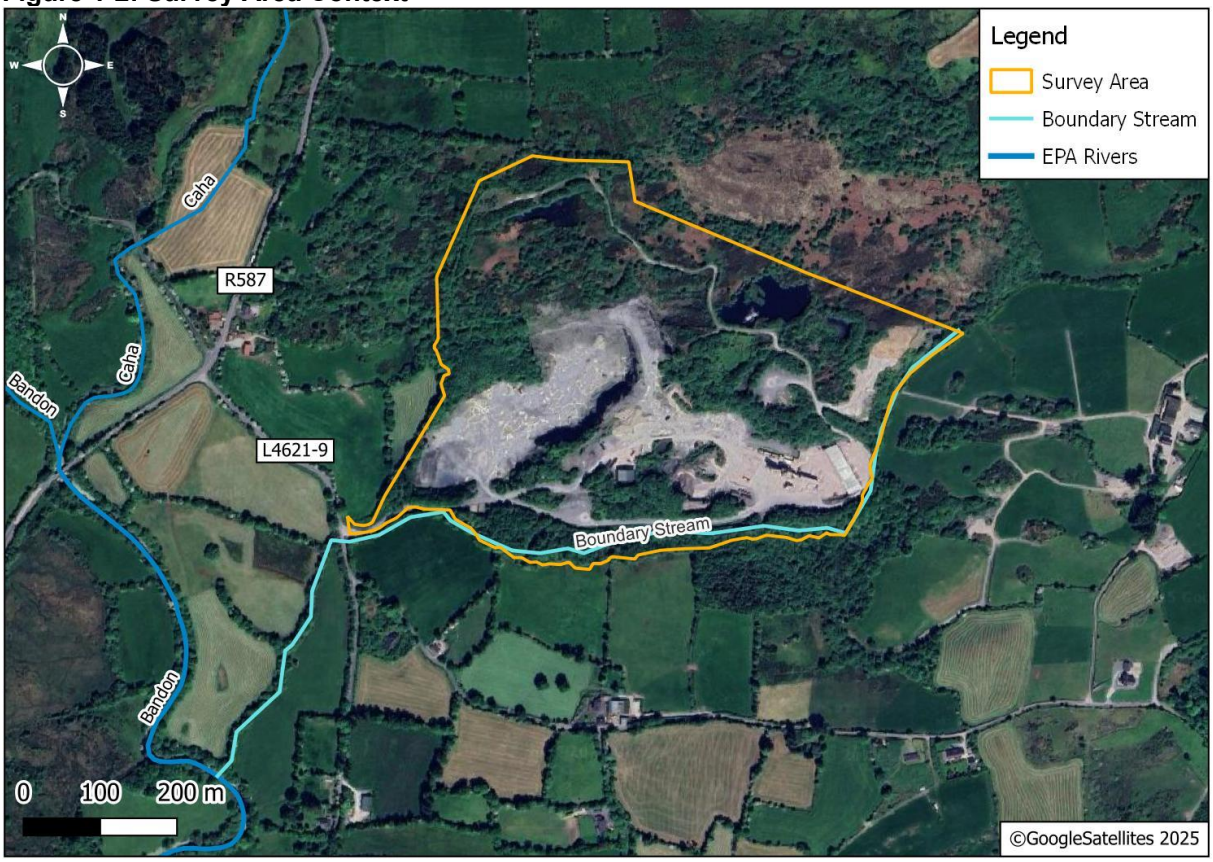
1.4 Survey Area Description

Ardcahan Quarry is in the townland of Ardcahan, approximately ('ca.') 3.5km northeast of Dunmanway in West Cork. The Survey Area is situated off the L4621-9 local road ('Hospital Road'), ca. 300m east of its junction with the R587 regional road, which links Dunmanway and Macroom (see Figure 1-2).

The Survey Area is located in a rural setting characterised by undulating topography, irregularly shaped fields and clusters of mixed woodland. The land immediately around the quarry consists of scrub, woodland and agricultural grassland. Land uses in the surrounding area primarily comprise livestock farming and rural housing.

The Survey Area is shown in Figure 1-2.

Figure 1-2: Survey Area Context



2 BACKGROUND INFORMATION

JK is an injurious, invasive herbaceous perennial. Since it was introduced as an ornamental plant in the 19th Century from Japan, it has spread across much of Ireland, particularly along watercourses, transport routes and waste grounds where its movement is unrestricted.

JK is considered to be a serious issue on the basis that it can:

- Damage buildings, hard surfaces and infrastructure by growing through concrete, tarmac and other hard surfaces;
- Outcompete and negatively impact on native plants and thus animals by forming dense thickets;
- Cause damage to flood defence infrastructure along watercourses and increase flood risk through reduced capacity of channels to carry flood water;
- Negatively impact the ability of projects to gain planning permission. Proper planning process requires measures to remove and eradicate the species from a development site;
- Cost of remediation can be both expensive and negatively impact on construction works; and,
- Decrease land value.

In Ireland, JK has not yet been recorded as producing viable seeds; all JK plants recorded in Ireland are female, which only reproduce through vegetative propagation. There are records of a hybrid JK plant, which is male; however, as of yet, no records of viable seed have been reported.

JK spreads through vegetative propagation from the crown, stem and rhizome (underground root); even small amounts of cut stem, crown or rhizome are capable of producing a new plant.

The rhizomes of JK are considered to be the main cause of the spread of JK. The rhizomes are particularly resistant to dehydration and freezing, and as little as 0.7gm of rhizome can regenerate into a new plant. Therefore, when a rhizome is disturbed or cut, it will produce a new shoot, and it is known that digging or other disturbances, such as earthworks, can significantly increase stem density. Also, JK plants can regrow from soil contaminated with JK rhizomes.

Similarly, the crown and stems of JK are also capable of regenerating. Small fragments of cut crown or stem are capable of regenerating and becoming a new plant. However, once stems are thoroughly dried, they are unable to regenerate.

Therefore, controlling the spread of JK is dependent on preventing the spread of all of these parts of the plant.

2.1 Legal Context

JK is a legally controlled species within Ireland due to the harm that it can cause to the natural environment and to built structures. It is controlled under the following legislation:

- European Union, Regulation on the prevention and management of introduction and spread of invasive alien species, 2014 [1143/2014];
- The Wildlife (Amendment) Act, 2023;
- European Communities (Birds and Natural Habitats) Regulations, 2011 to 2015
- Section 34 of the Planning and Development Acts, 2000, as amended; and,
- The European Union (Invasive Alien Species) Regulations 2024 (S.I. No. 374/2024).

Under this legislation, it is an offence to:

- Plant, disperse, allow dispersal or cause the spread of JK;
- Keep the plant in possession for the purpose of sale, breeding, reproduction, propagation, distribution, introduction or release;
- Keep anything from which the plant can be reproduced or propagated from without a granted licence; or,
- Keep any vector material, in this case soil or spoil taken from JK, for the purposes of breeding, distribution, introduction or release.

2.2 4th National Biodiversity Action Plan 2023 -2030

The National Biodiversity Plan sets out objectives, targets and actions with regard to controlling, managing and, where possible, eradicating invasive alien species in Ireland and notes that *'Efforts to tackle Invasive Alien Species will be elevated'.*

Objective Two:

- *'Meet Urgent Conservation and Restoration Needs '*

Outcome 2H:

- *'Invasive alien species (IAS) are controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity and measures are undertaken to tackle the introduction and spread of new IAS to the environment.'*

To achieve the above, 4 targets which incorporate 10 actions are set out, as follows:

- *By 2030, IAS are controlled, managed, and where possible, eradicated;*
- *By 2030, IAS are controlled, managed, and where possible, eradicated within Protected Areas and effectively controlled in urban, peri-urban areas, the wider countryside and marine and coastal areas;*
- *By end of 2023, a systematic baseline survey of priority invasive species and key hot-spot sites has been undertaken with subsequent periodic monitoring; and,*
- *By 2025, Ireland has adopted an all-island approach to invasive species.*

Objective Four of the Plan:

- '*Enhance the Evidence Base for Action on Biodiversity''.*

Action 4C8 under Outcome 4A states:

- '*The NBDC will, with relevant state partners, devise and undertake a systematic baseline survey for priority invasive species and hot-spot introduction sites with subsequent monitoring. This will be state-led and supported by Citizen Science engagement programmes'.*

3 SITE ASSESSMENT

An assessment of the Survey Area was undertaken on 9th January 2023 by two MOR Environmental Ecologists and encompassed the entire Survey Area. Updated surveys were undertaken on:

- 17th September 2024; and,
- 21st May 2025.

Large stands of JK were recorded in the northeast section of the Survey Area, adjacent to the recolonising bare ground. Stands of JK were recorded in the southwest of the Site, adjacent to the quarry. A stand of JK was recorded adjacent to the road in the south of the Survey Area. See Figure 3-1 for the locations of JK.

Figure 3-1: JK Locations

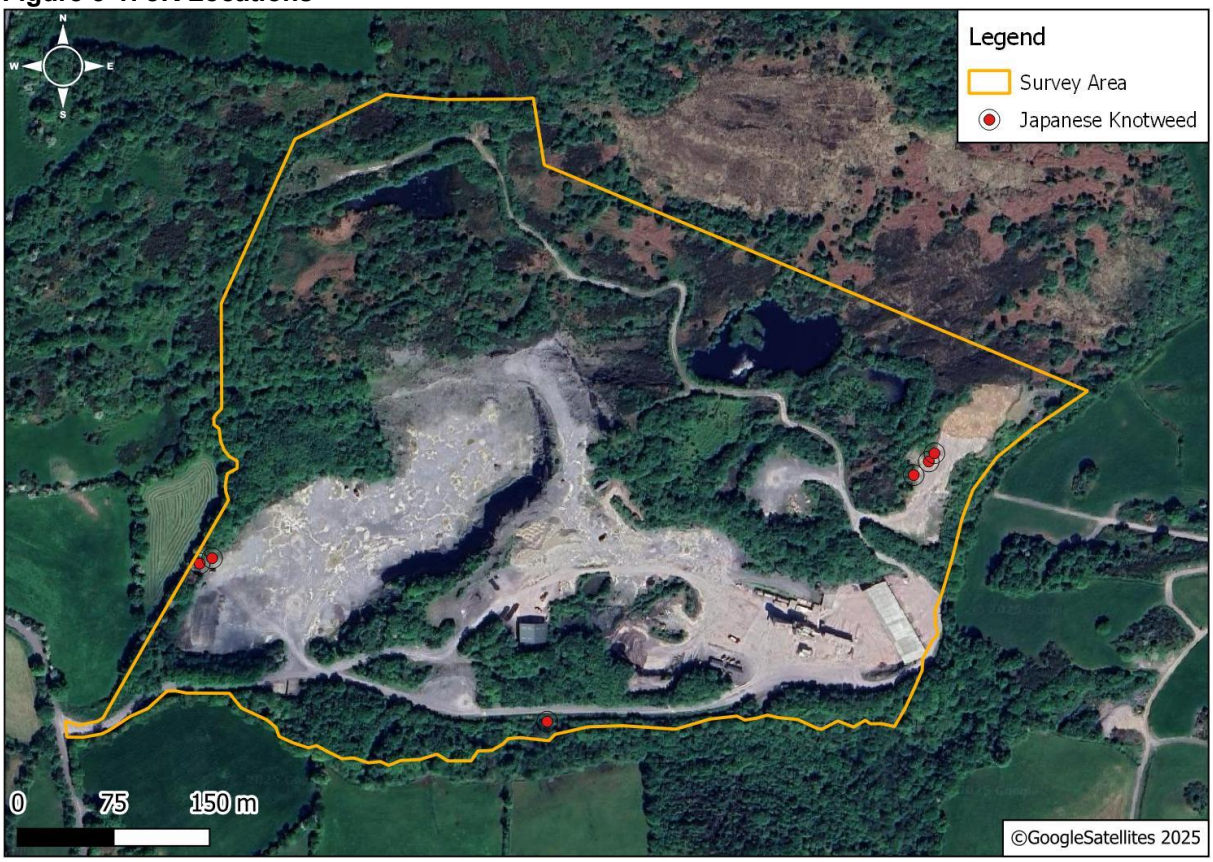


Plate 3-1: JK in the northeast of the Survey Area



Plate 3-2: JK in the southwest of the Site



3.1 Assessment Constraints

Some areas of the Site were inaccessible due to dense vegetation. However, these areas were assessed using binoculars from a distance. MOR Environmental Ecologists could not identify any stands of JK within these sections.

4 JAPANESE KNOTWEED MANAGEMENT PLAN

The JK Management Plan detailed below aims to ensure the remediation of the JK in the Survey Area and to ensure that there will not be unintentional spreading of JK to new locations. It is recommended that JK be remediated utilising herbicide treatment.

4.1 Description of the JK Management Plan

The herbicide treatment of JK within the Survey Area shall be overseen by the project Ecologist Clerk of Works ('ECoW'). The JK Management Plan, appendices and any subsequent revision shall be kept for future monitoring and remediation works. This JK Management Plan should be read in conjunction with:

- *The Knotweed Code of Practice: Managing Japanese Knotweed on Development Sites* [1];
- *The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Road*' [2];
- *Best Practice Management Guidelines: Japanese Knotweed Fallopia japonica* [3]; and,
- *Best Practice for Control of Japanese Knotweed Fallopia japonica* [4].

4.2 Setting Priorities

High Priority:

- JK signage should be erected;
- Remediation of JK and prevent unintentional spread of JK; and,
- No works should take place in any of the JK areas until the Ecologist has signed off that the JK remediation works have been completed.

4.3 Specific Remediation Actions

4.3.1 Site Preparation

Prior to any remediation works being undertaken, the following preparation actions will be required to limit the potential for any further spread of JK:

- Infected areas should be cordoned off (with an adequate 7m buffer zone), and signage should be erected to prevent access. These works should be supervised by the project ECoW;
- No vegetation management works or earthworks should take place within areas identified as having JK present or within the buffer zones;
- No new material or soil should be stored adjacent to the JK area; and,
- No plant or machinery should be tracked through areas containing JK or within the 7m buffer zone.

4.3.2 Herbicide Treatment

It is recommended that herbicide treatment be undertaken within the Survey Area and cover all areas of identified JK before the end of the growing season, which is typically from the end of September to the start of October. Herbicide treatments are known to be very effective and cause significant dieback of JK. Herbicide treatments generally take between 3-5 years, with spot treatment required each year until no regrowth is observed.

The initial JK treatment should be undertaken as soon as practically possible and before the end of the growing season. This will allow the JK to draw as much herbicide as possible into

the below-ground rhizomes. Following completion of the initial spray, this will then need to be followed up by a programme of regular spray treatments, comprising of three treatments per year during the growing season for a period of three to five years.

4.4 Site Biosecurity Measures

In order to mitigate against the unintentional spread of invasive species, the following biosecurity measures should be implemented.

- All vehicles, machinery and any other equipment entering / leaving the Survey Area should be washed and clean before entering and leaving the Site to prevent the spread of invasive plant material;
- Before machinery or equipment is unloaded within the Survey Area, equipment will be visually inspected to ensure that all adherent material and debris has been removed; and,
- Any vehicles and machinery that are not clean will not be permitted entry to the Survey Area.

4.4.1.1 Monitoring

The treatment works should be supervised by the project ECoW. As part of these works, the project ECoW will also monitor the effectiveness of the treatment.

On-going monitoring should be undertaken by the project ECoW in conjunction with chemical treatment to provide effective control of this species, as knotweed rhizomes that have not been completely killed off may send up new shoots as many as three years later.

Continued monitoring with the Survey Area is required in order to limit any potential spread of species to ensure desired results are being achieved and also to adapt remediation plans to improve success and treat any re-growth.

6 CONCLUSION

Following the invasive species assessment carried out at the Site, a number of JK stands were identified within the Survey Area. It is recommended that preparation measures, the herbicide treatment and the biosecurity measures be implemented as soon as possible in order to halt the spread of JK within the Survey Area and potentially to locations off-site.

Ongoing monitoring will be carried out by the project ECoW to track treatment effectiveness and manage any potential regrowth.

7 REFERENCES

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Murray Brothers Tarmacadam Ltd

APPENDIX 15.1
WALKOVER SURVEY PHOTOS

VOLUME III
APPENDICES

FEBRUARY 2026



Figure 1: Grotto on the western side of Mount Gunnery, looking east



Figure 2: Holy Well on the western side of Mount Gunnery, looking east



Figure 3: Quarried ground at the southwest of SCA



Figure 4: Tarmacadam plant outside the SCA to the south and east



Figure 5: Dense scrub and trees within the SCA



Figure 6: Dense scrub with rock outcrop visible



Figure 7: Dense scrub vegetation



Figure 8: Large area of hardstanding at the eastern side of the SCA



Figure 9: Large area of hardstanding at the eastern side of the SCA



Figure 10: Internal road in between overgrown scrubland



Figure 11: Large shallow pond at the northeast of the SCA