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Introduction

Background

6.1 This Chapter of the Environmental Impact Assessment Report (EIAR) addresses the impacts on land, soils and geology of the proposed continued use and extension of the existing sand & gravel pit at Ballymacoonoge & Glentire Townlands, Ballaghkeen, Co. Wexford.

6.2 This Chapter provides a description of the existing land, soils and geological setting at the regional and local scale, an assessment of the impact of the proposed activities on the land, soils and geological features of the area around the existing pit and the proposed extension area and other geological aspects of the development.

6.3 Anthony D'Arcy Ltd. (ADL) has been extracting sand and gravel at the existing Ballaghkeen pit site since early 2020 and has also operated Sand Pits in the Wexford area for over 30 years. The type of sand currently extracted by ADL at the existing sand pit is a high value finely sorted specialist sand which is unique to Ireland and ideal for use on golf courses and sports pitches.

6.4 The proposed development being applied for under this planning application is shown in plan on EIAR **Figure 2-2**, and in cross section on **Figure 2-3**, and will consist of:

- Continued use of the existing sand & gravel pit for completion of extraction and restoration under planning permission ref. 20191259);
- Extension to the existing sand & gravel pit over an extraction area of c. 11 hectares;
- Extraction to final level two metres above the groundwater table;
- Screening berms and operational landscaping;
- Continued processing of sand & gravel using permitted mobile screening plant located on the pit floor;
- Continuance of use of the existing permitted access and internal access road to / from the R744 regional road;
- Continuance of use of existing permitted ancillary facilities: Office, portaloo, storage container, wheelwash and fuel storage;
- Phased and final restoration of the lands to agricultural use;
- Proposed duration c. 18 years plus 2 years for final restoration, total permission duration of 20 years;

Within an overall planning application area of c. 23.2 hectares.

6.5 Further details on the proposed development (aggregate resource, site infrastructure, operations, environmental monitoring and controls etc.) are provided in EIAR Chapter 2 – Project Description.

Scope of Work / EIA Scoping

6.6 This EIAR Chapter is based on a desk-based study of the application site and surrounding lands undertaken using published geological data, site investigations and a geophysical survey of the neighbouring site.

Consultations / Consultees

6.7 The Geological Survey of Ireland (GSI) Irish Geological Heritage (IGH) Programme was consulted in relation to the proposed development in October 2025. No other consultations were undertaken specific to the land, soil and geology aspects of the site,

although consultations have been undertaken with other specialist contributors for individual EIAR Chapters where potential interactions could arise.

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Author

6.8 This EIAR chapter was prepared by

- Silas Rowe, Graduate Hydrogeologist, BSc.; and
- Peter Glanville, SLR Technical Director (Hydrology & Hydrogeology) PGeo. Eur. Geol, MCIWEM.

Regulatory Background

EU Directives

6.9 The following European Union (EU) Directives relating to Land, Soils and Geology inform the planning / environmental assessment presented in this Chapter of the EIAR:

- Environmental Impact Assessment Directive (2014/52/EU); and
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. 296 of 2018);

6.10 The EU EIA Directive regulates the environmental impact assessment process and type of information and assessment to be provided in this Chapter.

Irish Legislation

6.11 The following legislation relating to Land, Soils and Geology informs the environmental assessment presented in this Chapter of the EIAR:

- The Planning and Development Acts, 2000 as amended;
- The Planning and Development Regulations (S.I. 600 of 2001) and subsequent amendments thereto, including, S.I. No. 364 of 2005 and S.I. 685 of 2006;
- The European Communities (Environmental Impact Assessment) Regulations, S.I. No. 349 of 1989, and subsequent amendments (including S.I. No. 84 of 1994, S.I. No. 352 of 1998, S.I. No. 93 of 1999, S.I. No. 450 of 2000 and S.I. No. 538 of 2001);
- The European Union (Planning and Development) (Environmental Impact Assessment) Regulations (S.I. No. 543 of 2014) and European Union (Planning and Development) (Environmental Impact Assessment) Regulations (S.I. No. 296 of 2018); and
- European Union (Environmental Impact Assessment) (Minerals Development Act 1940) (Amendment) Regulations, S.I. No. 384 of 2018, and subsequent amendment (including S.I. No. 164 of 2019).

Planning Policy and Development Control

6.12 The Planning Policy and Development Control relating to Land, Soils and Geology at the application site is governed by the Wexford County Development Plan 2022-2028. The development plan sets out conservation objectives in relation to natural heritage and landscape, including geology within the county of Wexford.

6.13 The Wexford County Development Plan (Section 6.7.6.5) recognises the importance of the extractive industry to the economy of the county, and the need to balance the needs of the building industry with environmental protection.

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6.14 The development plan contains objectives in relation to the extractive industry, and those relevant to this EIA topic are set out below:

- ***ED116:*** *To require extractive and processing industries to be appropriately sited, designed and managed to avoid significant adverse impacts on their surrounding environment, amenities, road/public safety, and built and natural heritage. The Council will have regard to 'Quarries and Ancillary Activities' (DEHLG, 2004) in its considerations on quarrying (as may be updated in the lifetime of this Plan);*
- ***ED117:*** *To prohibit extractive industry development where it has not been demonstrated that adverse effects on the environment, landscape, heritage and surrounding residential, recreation or tourist amenities will not be generated, even if significant aggregate resources are identified. A strict precautionary approach will be taken where designated sites, proposed designated sites or protected species such as Special Areas of Conservation, candidate Special Areas of Conservation, Special Protection Areas, National Heritage Areas, proposed National Heritage Areas or County Geological Sites may be affected;*
- ***ED119:*** *To ensure that the road network to serve the extractive industry development is adequate in respect of its condition, width and horizontal and vertical alignment to carry the anticipated number and types of vehicles generated by the operation of the development without unduly impacting on the capacity or function of the road and / or effecting the safety of other road users including walkers and cyclists;*
- ***ED120:*** *To ensure that an effective buffer is provided for between proposed quarry operations and adjoining dwellings, landholdings, water courses, built and natural heritage (including archaeology), roads and other public infrastructure; and*
- ***ED121:*** *To restrict the removal of material, sand and gravel from beaches and river banks.*

Guidelines

6.15 This Land, Soils and Geology section of this EIAR has been prepared having regard to the following guidelines:

- Environmental Protection Agency (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports. Environmental Protection Agency;
- Geological Survey of Ireland, Irish Concrete Federation (2008) Geological Heritage Guidelines for the Extractive Industry;
- Institute of Geologists of Ireland (2013) Guidelines for the preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements;
- National Roads Authority (2008) Environmental Impact Assessment of National Road Schemes - A Practical Guide;
- National Roads Authority (2008) Guidelines on Procedures for Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes; and
- The Institute of Quarrying (2021), Good Practice Guide for Handling Soils in Mineral Workings.

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Receiving Environment

Study Area

6.16 For the purposes of this assessment, the study area comprises the application site and the surrounding area extending for a radius of 2km in order to identify any potentially sensitive nearby features or characteristics tied to Land, Soil and Geology. This is in line with the EIA Guidelines (2013) published by the Institute of Geologists of Ireland's (IGI).

6.17 The IGI Guidelines state that the minimum distance of 2km should be reviewed in the context of the geological environment, as well as the scale of development and that where necessary, the study area should be increased to reflect the sensitivity of the subsurface environment.

6.18 The IGI Guidelines also state that maps should be sourced to allow for the review of the geological conditions that exist within a minimum of 2 km of the application site boundary (from the outer limit of the planning and/or licence area) and presented at a scale of 1:25,000. The baseline maps produced in this EIAR are at a scale of 1:25,000 and include an area extending up to c. 3.5 km from the application site.

Baseline Study Methodology

6.19 The baseline study undertaken for Land, Soils and Geology, presented herein involves a review of published literature and information, recent well drilling and the findings from a walkover survey / inspection of the application site and the surrounding geological / landscape / environmental context, including the extended Doran's Pit complex.

6.20 This baseline study describes the receiving environment at and in the immediate vicinity of the site using the available baseline information gathered, specifically the:

- **Contex**t of the receiving environment – location / magnitude / spatial extent and trends of the environmental factors;
- **Character** of the receiving environment - distinguishing aspects of the environment being considered here;
- **Significance** of the receiving environment - the quality, value or designation is assigned to the existing environment; and
- **Sensitivity** of the receiving environment - how sensitive is the aspect of the environment to change.

6.21 The baseline study is a qualitative assessment of the available information based on professional experience and interpretation of the available data.

Sources of Information

6.22 The following sources of information were consulted in the preparation of the receiving environment baseline study for Land, Soils and Geology:

- Geological Survey of Ireland (www.gsi.ie);
- Teagasc / EPA subsoil mapping for Irish Forestry Soils Project (www.epa.ie);
- Teagasc / EPA Irish Soils Information System (www.teagasc.ie/soils);
- Irish Geological Heritage Programme (www.gsi.ie); and
- Tailte Éireann (www.osi.ie).

6.23 A geophysical survey was undertaken at the existing pit site in 2019 to assess the subsoil geological conditions. Three boreholes were drilled within the extension area in 2025 to provide information on the soil and subsoil stratigraphy. The information on the underlying geology obtained during the drilling process has been used to inform this assessment.

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Site Investigations

Geophysical Survey (2019)

6.24 A geophysical survey took place for the existing sand and gravel pit in 2019, to provide information on the sand and gravel subsoils using EM31 Conductivity Mapping and Electrical Resistivity Tomography.

6.25 The geophysical survey results indicate that silty sand and topsoil is typically 1.5m thick across the existing pit area, although it can be thicker in local zones. The sand layer thickness is reported to be relatively continuous across the site and averages 11.1m. The silty sand layer occurs beneath the main sand layer and is 3-6m thick. The sandy clay is typically present at approximately 20m below ground level (bgl).

Borehole Drilling (2025)

6.26 A borehole site investigation was undertaken in 2025 comprising three boreholes, see Table 6-1 and Appendix 6-A for a copy of the borehole logs. The borehole locations are shown on Figure 6-5.

Table 6-1: Summary Borehole Details

Borehole ID	Easting	Northing	Borehole Depth (m)	Depth to Base of Sand (m)	Stratigraphy
BH04	707744	636703	22.50	21.90	0.0-0.4m: topsoil 0.4-2.8m: slightly gravelly sand 2.8-13.0m: gravelly sand 13.0-15.8m: loose sand 15.8-21.9m: very silty sand 21.9-22.5m: firm to stiff clay
BH05	707414	636515	27.10	26.50	0.0-0.4m: topsoil 0.4-5.5m: slightly gravelly slightly silty sand 5.5-20.5: sand 20.5-26.5m: silty sand 26.5-27.1m: stiff clay
BH06	707555	636144	27.50	27.00	0.0-0.25m: topsoil 0.25-6.9m: sand 6.9-8.5m: slightly gravelly sand 8.5-23.7m: silty gravelly sand 23.7-27.0m: firm to stiff gravelly clay.

6.27 All three boreholes record sand thicknesses exceeding 21.5m, with sand also being present in all three boreholes at thicknesses ranging 2.8m to 15m.

6.28 None of the boreholes reach bedrock, with clay only occurring below 20m bgl, thus aligning with findings from the 2019 geophysical survey at the existing pit.

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Land Baseline

6.29 Within the EIA EU Directive (2014/52/EU) Land is recognised as a 'natural resource' and the Directive also refers to the importance of the sustainable use of soil and the need to address the unsustainable increase in settlement areas over time ('land take'). Therefore, the issues of land as both a natural resource and land take (land-use) must be considered in an assessment.

6.30 The citations at the outset of the EU EIA Directive (2014/52/EU) include a reference to:

'the final document of the United Nations Conference on Sustainable Development held in Rio de Janeiro on 20-22 June 2012, which recognises the economic and social significance of good land management, including soil, and the need for urgent action to reverse land degradation. Public and private projects should therefore consider and limit their impact on land, particularly as regards land take, and on soil, including as regards organic matter, erosion, compaction and sealing; appropriate land use plans and policies at national, regional and local level are also relevant in this regard'.

6.31 Land can be considered to be a resource with a beneficial use to society, for example agricultural land use, extractive industry land use or urban residential land use. Excess or unnecessary land take may therefore result in the loss or sterilisation of key land resources. This in turn has the potential to have adverse social and economic consequences for society.

6.32 The application site is located next to the existing Ballagh Pit which has been used for sand and gravel extraction since 2019. In addition, sand and gravel extraction is an established landuse in the vicinity of Ballaghkeen, Kilmuckridge and Blackwater with numerous pits in this area. It is therefore considered that sand and gravel extraction and related ancillary / processing activities can reasonably be considered to constitute established baseline land use and activity within the local and wider area in Co. Wexford.

6.33 Sand and gravel extraction land use at Ballagh Pit and the proposed extension area is intrinsically linked to the presence and suitability of proven natural sand and gravel reserves which are high value finely sorted specialist sand which is unique to Ireland and ideal for use on golf courses and sports pitches. Such deposits are amongst the most important, valuable and highly prized resources in the extractive and construction materials sectors.

6.34 The sand and gravel which occurs at Ballagh Pit and at the proposed extension area is of high value and is prized for use in sports facilities.

Land Cover

6.35 The CORINE Land Cover (CLC) mapping is a standardised inventory of land cover across Europe which is split into 44 different land cover classes. The latest 2018 Corine land cover mapping for Ireland is a based on the interpretation of satellite imagery and national in-situ vector data. Land cover is mapped to the standard CORINE classification system and data specifications.

6.36 The land at the proposed development is currently used for agriculture, arable land in the site area itself, and primarily pasture in the surrounding areas, see Figure 6-1.

6.37 The extraction of material at the proposed development site is a resource-tied land use activity, as it is dependent on the location and suitability of the sand & gravel deposits for its intended use, which are be considered to be a natural resource.

6.38 Several residential properties lie within proximity to the site borders, specifically, four along the southern border, two along the eastern border, one along the northern border, and one along the western border.

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Soils Baseline

6.39 Soil is defined as the top layer of the earth's crust and is formed by mineral particles, organic matter, water, air and living organisms. Soil is an extremely complex, variable and living medium and its characteristics are a function of parent subsoil or bedrock materials, climate, relief and the actions of living organisms over time.

6.40 Soil formation is an extremely slow process and can take thousands of years to evolve; soil can be considered essentially as a non-renewable resource.

6.41 As the interface between the earth, the air and the water, soil performs many vital functions; it supports food and other biomass production (forestry, biofuels etc.) by providing anchorage for vegetation and storing water and nutrients long enough for plants to absorb them. Soil also stores, filters and transforms other substances, including carbon and nitrogen, and has a role supporting habitats serving as a platform for human activity.

National Soils

6.42 The Irish Soil Information System project has developed a national soil association map for Ireland; the project is co-funded by Teagasc and the Environmental Protection Agency (EPA).

6.43 The ISIS project identified a number of Soil Associations across Ireland, which are each comprised of a range of soil types (or 'Series'), each of them different in properties, and in environmental and agronomic responses.

6.44 The soil association at the proposed development site is classified as the Seafield Soil Association (ISIS Code 300a); it is described as sandy, stoneless drift, see Figure 6-2. The soil combination is considered to be well draining. The Seafield soil association belongs to the Typical Rendzinas subgroup of the Rendzina great group. The Rendzinas group are considered to be relatively thin and well-draining.

Site Soils

6.45 The 2025 drilling investigation indicates that topsoil occurs to a depth range of 0.25m - 0.40m across the three boreholes.

Subsoils Baseline

Regional Subsoils

6.46 Subsoils (also known as Quaternary deposits) were deposited during the last 2 million years and essentially comprise unconsolidated materials overlying bedrock. The two predominant types of quaternary subsoils in Ireland are glacial till, deposited at the base of ice sheets and sand and gravel deposits, associated with the melting of the ice sheets and are generally termed 'glaciofluvial outwash sands and gravels'.

6.47 Other extensive Quaternary subsoils in Ireland include peat, river alluvium and coastal process deposits. Most Quaternary subsoils in Ireland were deposited after the maximum of the last glaciation, the Midlandian, which occurred approximately 17,000 years ago.

6.48 The subsoils across Ireland have been mapped on a national basis by Teagasc as part of the EPA Soil and Subsoil Mapping Project for the Irish Forestry Soils (IFS) project. The subsoil mapping was undertaken at a national basis using existing Quaternary Geology maps, publications, remote sensing and field mapping and sampling.

6.49 The published subsoil map for the area around the application site is shown in Figure 6-3. The mapping indicates that the application site is entirely underlain by sandstone and shales sand and gravels from the Lower Palaeozoic. These deposits are considered to be of glaciofluvial origin.

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6.50 Within 2km of the extension area the subsoils are predominantly sands and gravels. However, an area of Lower Palaeozoic shale till exists 1.2km east of the site and to the south of the site alluvium is present on the valley floor.

Local Detail

6.51 The 2019 geophysical survey reports a relatively thick subsoil layer exceeding 20 m in thickness, which ranges in size from gravelly sand to silty.

6.52 All three 2025 boreholes record sand thicknesses exceeding 21.5m, with sand also being present in all three boreholes at thicknesses ranging 2.8m to 15m. None of the boreholes reach bedrock, with clay only occurring below 20m bgl, thus aligning with findings from the 2019 geophysical survey at the existing pit.

Bedrock Geology Baseline

Regional Setting

6.53 Bedrock mapping published by the Geological Survey of Ireland (GSI) at 1:100,000 scale, reproduced in Figure 6-4, indicates that the proposed site lies in the Middle Ordovician slates and schists of south-eastern Ireland. The regional trend is north-easterly. The extension area itself is underlain by the Ballyhoge Formation. These are described by the GSI as consisting of a '*sequence of dark blue-grey, sometimes graphitic, slaty mudstones which are frequently pinstriped with pale siltstone laminae.'* These belong to the Ordovician Period.

6.54 Several granite intrusions lie within the vicinity of the site to the northwest. The nearest of these lies approximately 1.3km to the north of the extension area. These are the Ballynamuddagh Granite, and are described by the GSI as '*Grey, fine to medium grained biotite granite'*. These have a metamorphic aureole of approximately 400-500m from the outside edge of the intrusions.

6.55 To the southwest, there is significant faulting in two principal orientations, namely SW-NE and N-S. These delineate the boundary with the Newtown Formation, which as described by the GSI *'consists of a succession of green greywackes averaging 50cm and associated green and purple shales and slates (20-25cm thick). There is also sparse occurrence of thick green and green-grey shale units (up to 45m thick) and green massive mat'.*

Local Detail

6.56 Bedrock is buried beneath significant thicknesses of soil and subsoil (specifically sand and gravel, underlain by clay at depth greater than 20 mbgl). There are no bedrock outcrops at the application site and bedrock was not encountered in any of the 2025 boreholes.

Karstification

6.57 Karst does not occur in these rock types; however for completeness, the GSI karst database was consulted, and it was confirmed that there are no known karst features in the vicinity of the proposed development site.

Geological Heritage Baseline

6.58 An audit of County Geological Sites in County Wexford was completed by the Geological Survey of Ireland (GSI) Irish Geological Heritage (IGH) Programme in 2018. The GSI Geological Heritage map viewer was reviewed to establish if there were any designated geological heritage sites or features were present at the site of the proposed development or in the immediate vicinity of the application site.

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6.59 There are no County Geological Sites within 1km of the proposed development site.

Consultation Feedback from the Geological Survey of Ireland

6.60 The Geological Survey of Ireland (GSI) was consulted in respect of the proposed extension to the existing pit. A copy of its consultation response dated 14th October 2025 is reproduced in Appendix 6-B.

6.61 The GSI has requested that the quarry operator assist it in the attainment of its geological heritage goals by including the following as part of the restoration / closure plan and has requested that it could be included as a condition in any grant of planning permission as may be deemed appropriate by the Planning Authority. GSI specifically asked that a planning condition be applied in relation to:

i. Allowing access to quarry faces by appropriate scientists (upon request and with due regards to Health and Safety requirements) during quarrying to check for scientifically significant new stratigraphies / relationships as they might become exposed and to establish if the quarry site is worthy of recognition post extraction and through aftercare / restoration planning; and

ii. If deemed appropriate based on the above, leaving a representative section of the quarry face at the end of the quarry life or inclusion of information panels to promote the geology to the public or develop tourism or educational resources if appropriate depending on the future use of the site. Natural exposures are few, or deeply weathered, this measure would permit on-going improvement of geological knowledge of the subsurface.

6.62 ADL has considered the GSI request and confirms its readiness to assist the GSI in respect of requested site access to collect and record scientific data, both at the outset of the development and during the extraction phase, as pit faces are excavated and exposed.

6.63 The restoration plan for the pit development envisages that the excavated landform will be seeded and restored to agricultural land-use (grassland) and as such, no long-term sand and gravel exposures will remain post-closure, following cessation of extraction activity. Seeding and long-term vegetating of the excavated pit and pit floor is considered essential to enhance stability (through root action) and minimise the potential for future soil erosion and dust emissions / dust blows.

6.63. The GSI in its consultation response recommended utilising and referencing its publicly available datasets for environmental assessment and in support of the planning process, refer to Appendix 6-B. This EIA Chapter references and incorporates the relevant datasets pertaining to land, soils and geology, as referenced by the GSI in its consultation response.

Sensitive Receptors

6.64 In terms of the existing land, soils and geology baseline for this assessment, the sensitive receptors identified are:

- Land use;
- Soils; and
- Subsoils.

6.65 The proposed development of the pit extension will comprise the extraction of sand and gravel deposits and the phased restoration of the extraction areas. There is therefore a requirement for land take, soil stripping and the excavation of the sand and gravel deposits. As a result, there will be potential impact on land, soils and subsoils arising from the proposed development which is assessed below for the identified sensitive receptors.

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Impact Assessment

Evaluation Methodology

6.66 The evaluation of impacts of the proposed development is based on a methodology similar to that outlined in the:

- Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI, 2013); and
- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022).

Evaluation of Impacts

6.67 This assessment will focus on the potential impact of the proposed extraction activities on land, soils and geology at the application site and surrounding local area. Full details of the proposed development on the extraction of sand and gravel and the restoration of the site are provided in Chapter 2 of this EIAR.

6.68 The status and importance of existing land, soil and geology attributes identified at the application site is assessed in Table 6-1 below.

Table 6-2: Status and Importance Land, Soil and Geology Attributes

Attribute	Status / Occurrence	Importance
Land	The land at the proposed pit extension currently comprises agricultural land.	Agricultural land has a value in terms of its ability to support food production. Arable and pastureland is extensive within Co. Wexford and as such, it is considered to be of **Medium Importance** at the local scale.
Soils	The soils at the site are well draining. The Seafield Soil Association has a relatively wide distribution across the county.	The soils are well draining but are limited by their shallow nature. These soils are suitable for agriculture although their use can be limited. Consequently, they are considered to be of **Medium Importance**.
Subsoils	The subsoils are sand and gravels derived from lower Paleozoic rocks and are relatively widespread in the county. The subsoils do not have any particular status.	The sand and gravel subsoils are important and of high economic value as an aggregate resource at the national level owing to their use on golf courses and sports pitches. The resource is considered to be **High Importance** at the national level.
Geology	The bedrock at the site is covered by the subsoils and does not have any designated status.	In terms of the proposed development, as bedrock will not be extracted as part of the development, it is not considered important for the purposes of this assessment. .
Geological Heritage	There are no geological heritage designations.	There are no designated geological heritage sites in the vicinity of the site.

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Construction Stage

6.69 In the context of the proposed extraction and restoration of the site, the construction stage is taken to comprise the advance site preparation works which will take the form of soil stripping and storage for reuse in restoration.

6.70 During the construction or site preparation stage, there will be a direct impact on the existing land and soils at the application site, see Table 6-3 below.

6.71 It is considered that there will be no indirect impacts on land, soils or geology arising from the construction stage.

Table 6-3: Magnitude of Potential Impacts During Construction Stage (No Mitigation)

Attribute	Impact of Proposed Development on Land, Soil and Geology	Construction Stage - Magnitude of Potential Impact (with no mitigation)
Land	Change in land use from agricultural to extractive at the proposed extension area.	Moderate impact due to long term effects (extraction is scheduled to be 18 years, followed by 2 years final restoration) loss of the resource which is of medium importance.
Soils	Stripping of soils from across the site.	Moderate impact due to long term effects (extraction is scheduled to be 18 years, followed by 2 years final restoration project) loss of the resource which is of medium importance.

Operational Stage

6.72 During the operational stage, sand and gravel subsoils will be extracted at the site. There are potential adverse impacts for subsoils. The magnitude of operational stage impacts on subsoils and heritage are assessed in Table 6-4 below.

6.73 There will be no indirect impacts on land, soils or geology during the operational stage as a result of the proposed development.

Table 6-4: Magnitude of Potential Impacts During the Operational Stage (No Mitigation)

Attribute	Impact of Proposed Development on Land, Soil and Geology	Operational Stage - Magnitude of Potential Impact (with no mitigation)
Subsoils	Removal of sand and gravel subsoils.	Permanent and adverse with extraction of sand and gravel subsoils.
Pit face stability	Potential ground instability owing to over steepened pit faces	Moderate and adverse with potential instability of pit faces.

Unplanned Events

6.74 Unplanned events within the application site have the potential to impact on the land, soils and geology adjoining the site. Ground instability, particularly the long-term stability of pit faces, has the potential to impact on adjoining lands.

6.75 Ground instability, particularly the long-term stability of the pit faces, has the potential to impact on adjoining lands. The proposed development will adhere to the Health and

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Safety Authority Safe Quarry Regulations and Guidance[1] in relation to the Safety, Health and Welfare at Work (SHWW) Regulations[2] and this will eliminate the potential for unplanned events such as instability of pit faces or instability in adjacent lands.

6.76 With the implementation of the SHWW Quarry Regulations 2008, it is considered extremely unlikely that instability of pit faces would result in an impact on the land, soils and geology at the proposed development site.

6.77 From a land, soils and geology perspective, any potential impacts on human health from extraction activities at the application site would be principally by other pathways such as air (principally dust) and water (principally groundwater) rather than via soil / geology pathways. These are addressed separately in EIAR Chapter 7 Water and EIAR Chapter 8 Air Quality.

Cumulative Impacts

6.78 The proposed pit extension will have a cumulative impact with the existing extraction area at the site which was granted permission in 2019. However, the proposed extension provides for a continuation of extraction activity at the existing site since 2019; there will be no increase in activity or output associated with the proposed development compared to the existing pit.

6.79 In addition, the existing pit is being restored progressively to agricultural landuse under the existing planning permission, thus reducing any cumulative impacts on the land and soils associated with the proposed extension.

Interaction with Other Impacts

6.80 There is a potential increased risk to groundwater quality with the removal of the sand and gravel subsoil material overlying the application site. This aspect is discussed in more detail in Chapter 7 of this EIAR (Water).

'Do-nothing' Scenario

6.81 Under a 'do-nothing' scenario, the proposed extraction of sand and gravel material at the application site would not proceed and the existing agricultural land-use, soil and sand and gravel subsoils would remain in-situ at the application site.

[1] www.hsa.ie

[2] Safety, Health and Welfare at Work (Quarries) Regulations 2008.

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Mitigation Measures

6.82 Mitigation measures outlined below will be implemented in the course of the proposed development to mitigate against any potential adverse impacts which could potentially arise for the receiving Land, Soil and Geological Heritage environment.

Construction Stage

Soils

6.83 The scheme will involve soil stripping across the excavation areas. Soils will be managed on site in line with best practice guidance as set out in The Institute of Quarrying guidelines[3].

6.84 Good practice measures will be implemented at the site in order to preserve the structure and integrity of the soils and limit the effects of erosion on the stored soil during excavation and storage.

6.85 During the site construction stage, the topsoil will be stripped off and will be used for perimeter screening berms, pending use in restoration works. The soils will be stripped and stored in accordance with best practice guidance[3].

6.86 The soil handling method can affect the quality of the restoration through severe soil deformation (compression and smearing); this is primarily caused through trafficking, the effects of which increase with soil moisture content. The soil stripping and storage operations will be undertaken in such a manner so as to minimise soil compaction.

6.87 In order to limit the effects of erosion and deterioration on the soil, material will not be removed during either periods of prolonged dry weather or excessively wet weather; this is to avoid the higher potential for dust generation during extended periods of dry weather, and conversely the greater potential for soil erosion during extended periods of wet weather.

6.88 Soil stripping is to be undertaken by the excavator standing on the surface of the topsoil and digging the topsoil to its maximum depth and loading it into dump trucks. The dump trucks draw alongside the exposed soil profile, standing and travelling only on the basal layer (see **Diagram 6-1** and **Diagram 6-2** below).

[3] The Institute of Quarrying Good Practice Guide for Handling Soils in Mineral Workings, 2021.

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Diagram 6-1: Soil Stripping Using Modified Layer by Layer Practice (The Institute of Quarrying, 2021)

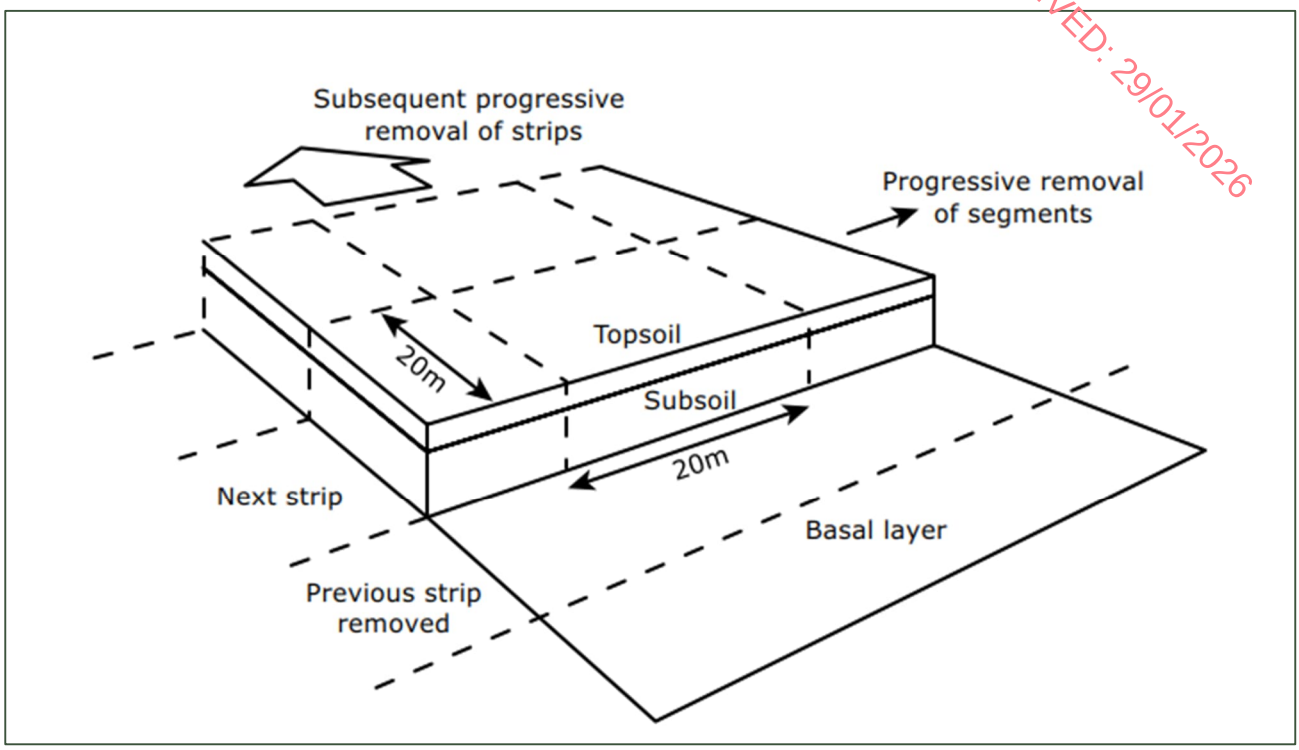
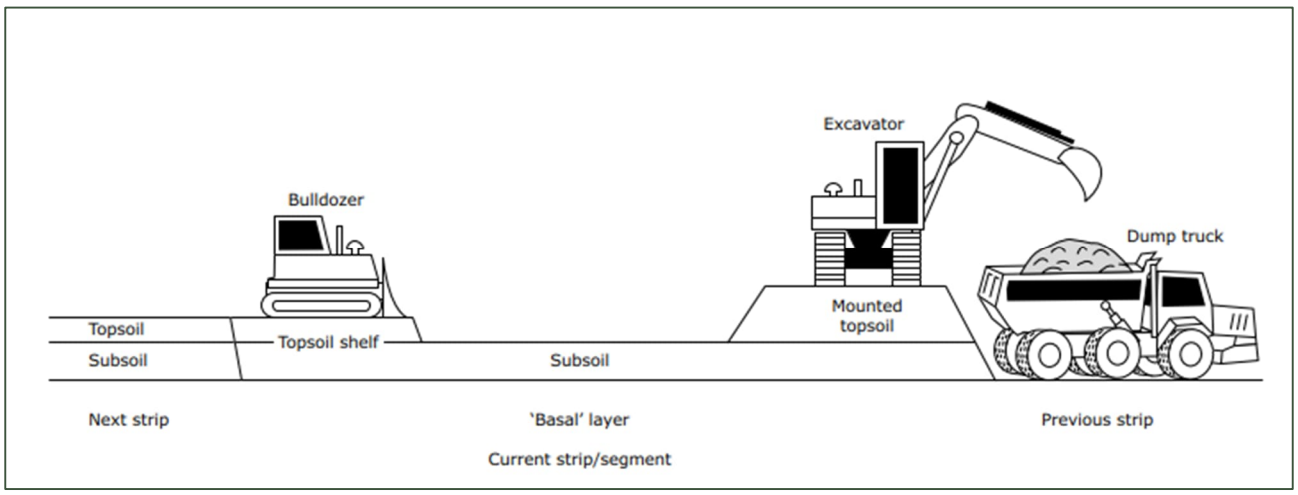


Diagram 6-2: Topsoil Stripping Using Modified Layer by Layer Practice (The Institute of Quarrying, 2021)



6.89 Topsoil storage will not exceed 3m in height in order to protect the structure of the soils for use in restoration. Any subsoils, if present, will be stored at a maximum height of 5m.

6.90 Stripped soils will be re-vegetated where they are in place for a sufficient length of time to justify such a measure. The re-handling of soil material will be minimised as much as possible in order to preserve the integrity of the topsoil material. This is also an economically prudent practice.

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Operation Stage

6.91 During the operation stage the sand and gravel deposits will be excavated and processed at the existing mobile processing (screening) plant within the existing pit. Mitigation measures to be applied in respect of site operations relate to:

- Subsoils; and
- Pit side stability.

6.92 Soils will have been stockpiled within and around the extraction area during the operational stage and no mitigation measures are required.

6.93 The pit design has been undertaken to ensure stability for the pit sides. Pit side slopes will generally be graded at an angle no steeper than 35° (approximately 1v:1.5h) which will be sufficient to ensure no large-scale instability arises. Ongoing assessment of slope stability will be undertaken at the application site as extraction progresses and where necessary, slopes will be graded having due regard to safe systems of work.

6.94 The risk of localised erosion within the site (and potential dust emissions) during operations will be limited through phased extraction and progressive restoration.

Geology

6.95 No rock extraction will take place at the site and therefore no mitigation measures are required.

Geological Heritage

6.96 To facilitate further development of geological knowledge and understanding, during the operational stage the Applicant will facilitate access to any exposed pit faces by GSI staff for inspection, educational and scientific purposes, subject to advance notice and compliance with health & safety regulations.

Post-Operation Stage

6.97 During the post-operation stage the pit will be restored to beneficial agricultural landuse.

Land

6.98 Land to be restored to beneficial agricultural landuse. Pit side slopes will be graded to 1.5 H : 1 V or less to ensure long term stability.

Soils

6.99 Land will be restored to its original agricultural use with soils which will have been retained on site.

Residual Impact Assessment

6.100 The residual impacts on land, soil and geology are those impacts which remain following the implementation of the mitigation measures outlined above.

Construction Stage

6.101 It is considered that with the construction stage mitigation measures in place there are No Significant residual impacts associated with construction stage of the proposed development as the stripped Soils will be stored for subsequent re-use in site restoration works.

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Operational Stage

6.102 The sand and gravel subsoils at the application site will be excavated, processed on-site and transferred off site to supply existing markets. A long term secure supply of these materials is essential for the construction and sporting / recreational sectors regionally and nationally. A residual impact will remain as the sand and gravel deposit will have been extracted at the site.

6.103 The design of the extraction scheme with boundary set-back distance and final pit slopes, and with the operation of the quarry in line with the Health and Safety Authority Safe Quarry Guidelines in relation to the Safety Health and Welfare at Work (Quarries) Regulations 2008, will eliminate the potential for unplanned events such as instability of quarry face or instability in adjacent lands. Therefore, it is considered that there will be No Significant residual impact on Land Stability arising from the proposed development.

Post Operational Phase

6.104 Following completion of the final restoration works and the return of the site to agricultural landuse, there will be No Significant residual impact on the Land, Soils or Geology, refer to EIAR Chapter 2 Project Description and EIAR Figure 2-4 Landscaping & Restoration Plan.

Monitoring

6.105 The restoration works will be managed and monitored to ensure that the restored soils and land use is successful, refer to EIAR Chapter 2 Project Description.

6.106 The site will be monitored during the two year final restoration period to ensure that there is no soil loss or erosion, that restored pit faces remain stable and that the intended agricultural use (grassland) is established.

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References

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EPA (2008), Irish Soil Information System Final Technical Report 10.

Geological Survey of Ireland (2007), 1:100,000 Bedrock Geology of Ireland (Digital-Map).

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Teagasc, 2004, Ireland Subsoil Parent Materials Map (digital version).

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The Institute of Quarrying Good (2021). Practice Guide for Handling Soils in Mineral Workings.

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FIGURES

Figure 6-1: CORINE Land Cover Map

Figure 6-2: Soils Map

Figure 6-3: Subsoils Map

Figure 6-4: Bedrock Geology Map

Figure 6-5: Borehole Locations

Notes:

1. BASED ON 1:50,000 DISCOVERY SERIES OSI MAPPING - MAP **NO. 69 & 77**.

Legend:

ANTHONY D'ARCY LAND INTEREST AREA (c.27.2 Hectares)

PLANNING PERMISSION AREA (c.23.2 Hectares)

Corine Land Cover

- 112 Discontinuous urban fabric
- 211 Non-irrigated arable land
- 231 Pastures
- 242 Complex cultivation patterns
- 243 Land principally occupied by agriculture, with significant areas of natural vegetation
- 312 Coniferous forest
- 313 Mixed forest

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N

0 500 1000 1500 2000 2500m

Scale 1:25,000

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Drawing Purpose

Suitability Code

Client
ANTHONY D'ARCY LTD.

Project
SAND & GRVEL PIT AT BALLYMACOONOGE, GLENTIRE & BALLYNAMONABEG TOWNLANDS BALLAGHKEEN, CO. WEXFORD

Drawing Title
CORINE LAND COVER MAP

Scale	SLR Project No.
1:25,000 @ A3	065860.00001

Designed	Drawn	Checked	Authorised
EW	EW	TP	TP
Date 01/26	Date 01/26	Date 01/26	Date 01/26

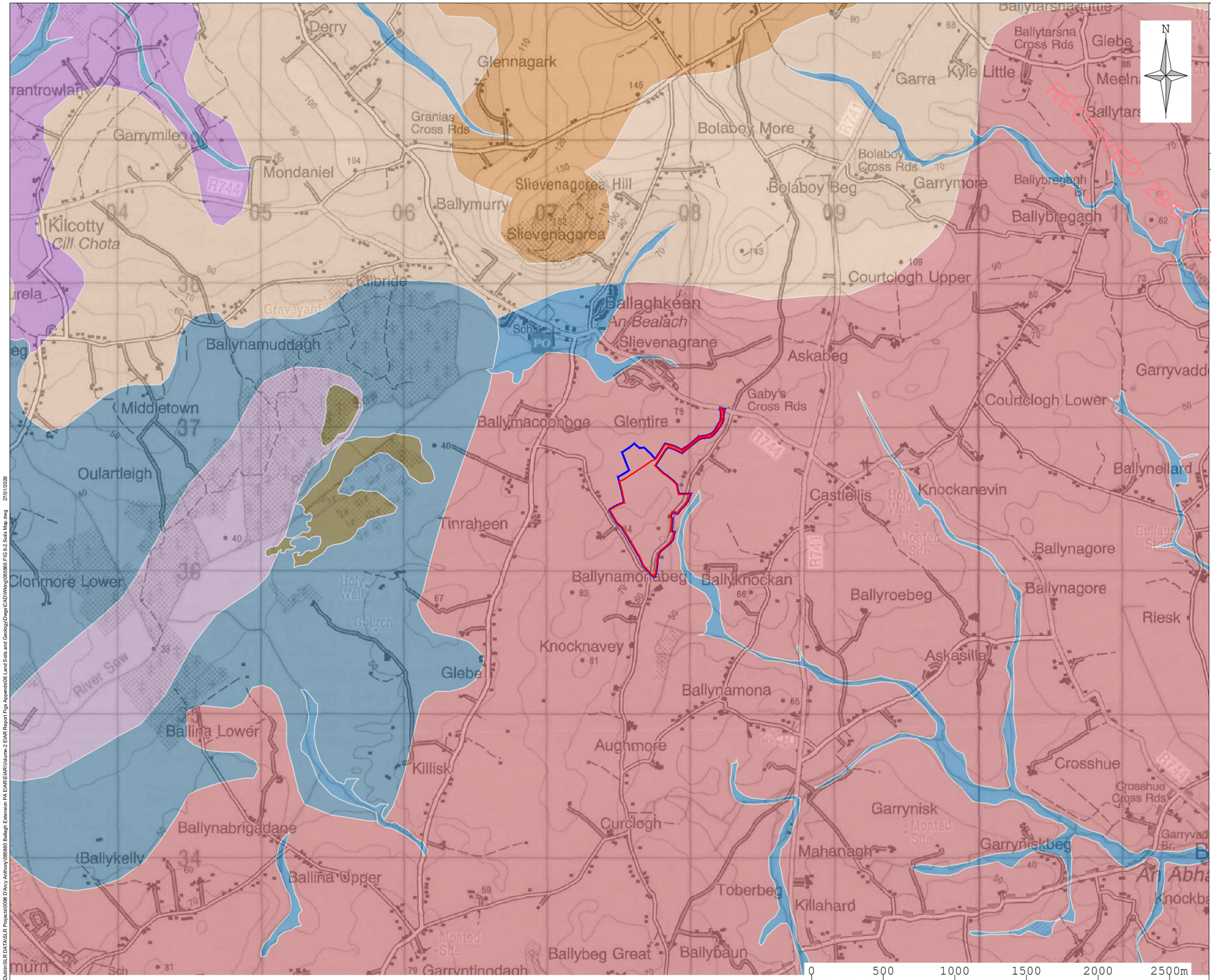
Drawing Number **FIGURE 6-1**

Rev. **0**

\\dir.local\ie\Offices\IE\Dublin\SLR DATA\SLR Projects\0008 D'Arcy Anthony\065860 Ballagh Extension PA EIAR\EIAR\Volume-2 EIAR Report Figs Appends\06 Land Soils and Geology\Dwgs\CAD\Wking\065860_FIG 6-1 Corine Land Cover.dwg 27/01/2026

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Notes:

1. BASED ON 1:50,000 DISCOVERY SERIES OSI MAPPING - MAP **NO. 69 & 77**.

Legend:

ANTHONY D'ARCY LAND INTEREST AREA (c.27.2 Hectares)

PLANNING PERMISSION AREA (c.23.2 Hectares)

National Soil Association

- Ballylanders
- Black Rock Mountain
- Clonroche
- Kilpierce
- Lake
- Macamore
- Peat
- Puckane
- River
- Screen
- Urban

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Suitability Code:

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Drawing Title: SOILS MAP

Scale	SLR Project No.
1:25,000 @ A3	065860.00001

Designed	Drawn	Checked	Authorised
EW	EW	TP	TP
Date: 01/26	Date: 01/26	Date: 01/26	Date: 01/26

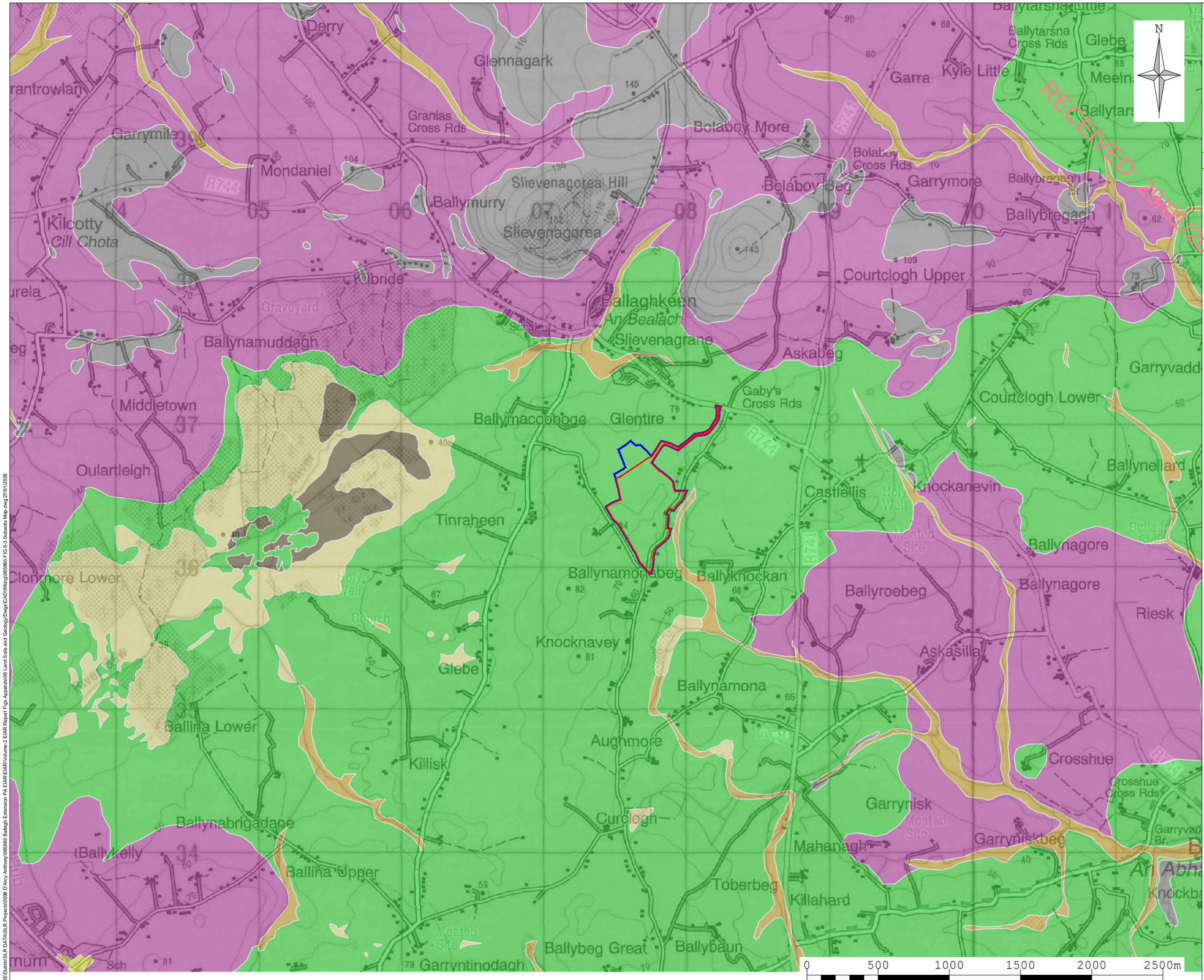
Drawing Number: **FIGURE 6-2**

Rev.: **0**

\\dr.local\ie\Offices\IE\Dublin\SLR DATA\SLR Projects\065860 Ballagh Extension PA EIAR\EIAR\Volume-2 EIAR Report Figs Appends\06 Land Soils and Geology\Dwgs\CAD\Wking\065860 FIG 6-2 Soils Map.dwg 27/01/2026

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Scale 1:25,000

Notes:

1. BASED ON 1:50,000 DISCOVERY SERIES OSI MAPPING - MAP **NO. 69 & 77**.

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Legend:

ANTHONY D'ARCY LAND INTEREST AREA (c.27.2 Hectares)

PLANNING PERMISSION AREA (c.23.2 Hectares)

National Subsoils

- Alluvium undifferentiated
- Cutover peat
- Sandstone and shale sands and gravels (Lower Palaeozoic)
- Limestone till (Carboniferous) with matrix of Irish Sea Basin origin
- Lake sediments undifferentiated
- Made ground
- Bedrock at surface
- Shale till (Lower Palaeozoic)
- Water

Rev	Amendments	Date	By	Chk	Auth

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Drawing Purpose	Suitability Code
Client: ANTHONY D'ARCY LTD.	
Project: SAND & GRVEL PIT AT BALLYMACOONOGE, GLENTIRE & BALLYNAMONABEG TOWNLANDS BALLAGHKEEN, CO. WEXFORD	
Drawing Title: SUBSOILS MAP	
Scale: 1:25,000 @ A3	SLR Project No.: 065860.00001

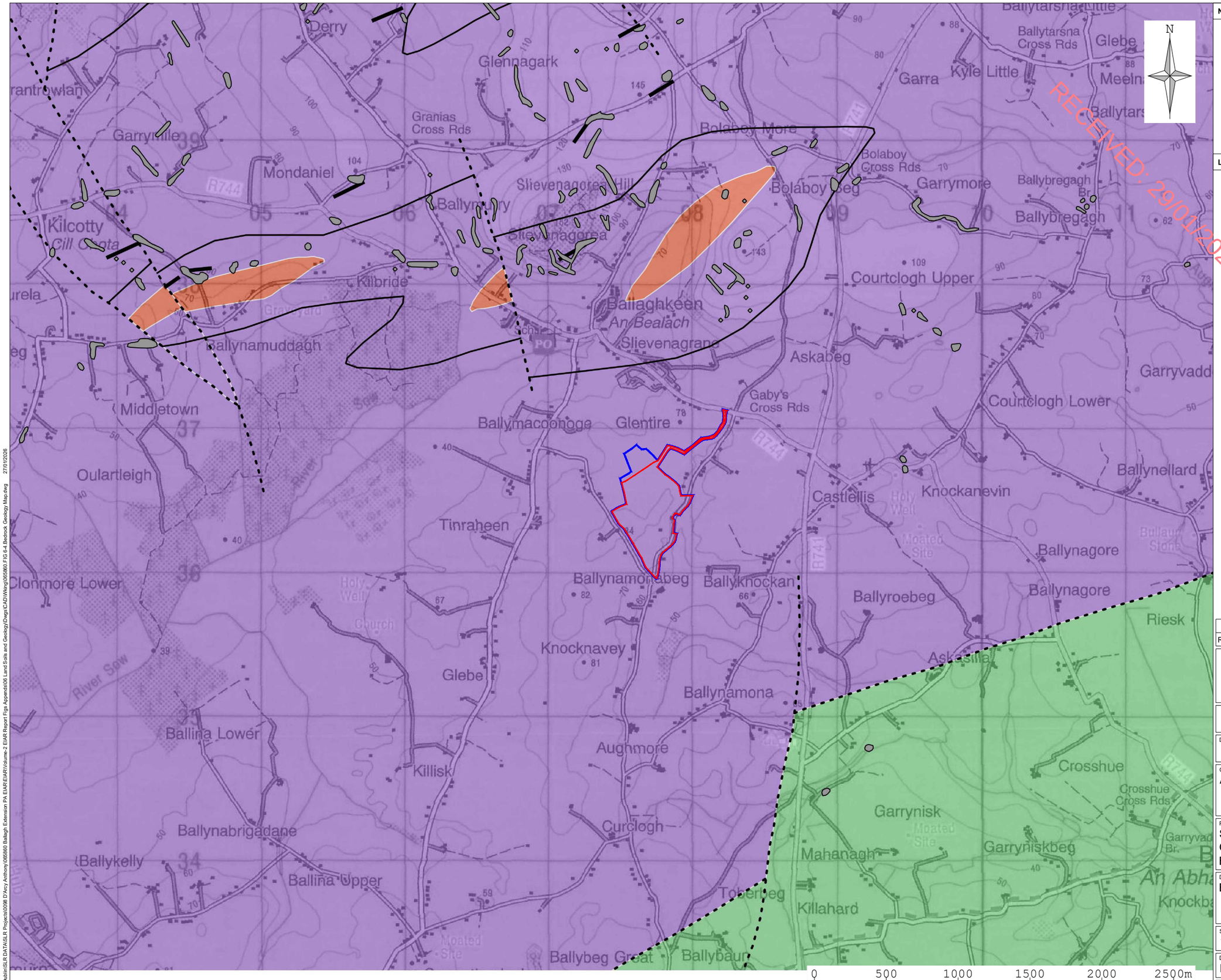
Designed	Drawn	Checked	Authorised
EW	EW	TP	TP
Date: 01/26	Date: 01/26	Date: 01/26	Date: 01/26

Drawing Number: **FIGURE 6-3** Rev.: **0**

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Notes:

1. BASED ON 1:50,000 DISCOVERY SERIES OSI MAPPING - MAP **NO. 69 & 77**.

Legend:

ANTHONY D'ARCY LAND INTEREST AREA (c.27.2 Hectares)

PLANNING PERMISSION AREA (c.23.2 Hectares)

Bedrock Outcrops

Structural Features

- Dyke (Felsite)
- Fault
- Outer limit of metamorphic aureole

GSI Bedrock 100K

- Ballyhoge Formation
- Ballynamuddagh Granite
- Campile Formation
- Newtown Formation

Rev	Amendments	Date	By	Chk	Auth

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Drawing Purpose	Suitability Code
Client: ANTHONY D'ARCY LTD.	
Project: SAND & GRVEL PIT AT BALLYMACOONOGE, GLENTIRE & BALLYNAMONABEG TOWNLANDS BALLAGHKEEN, CO. WEXFORD	
Drawing Title: BEDROCK GEOLOGY MAP	
Scale: 1:25,000 @ A3	SLR Project No.: 065860.00001

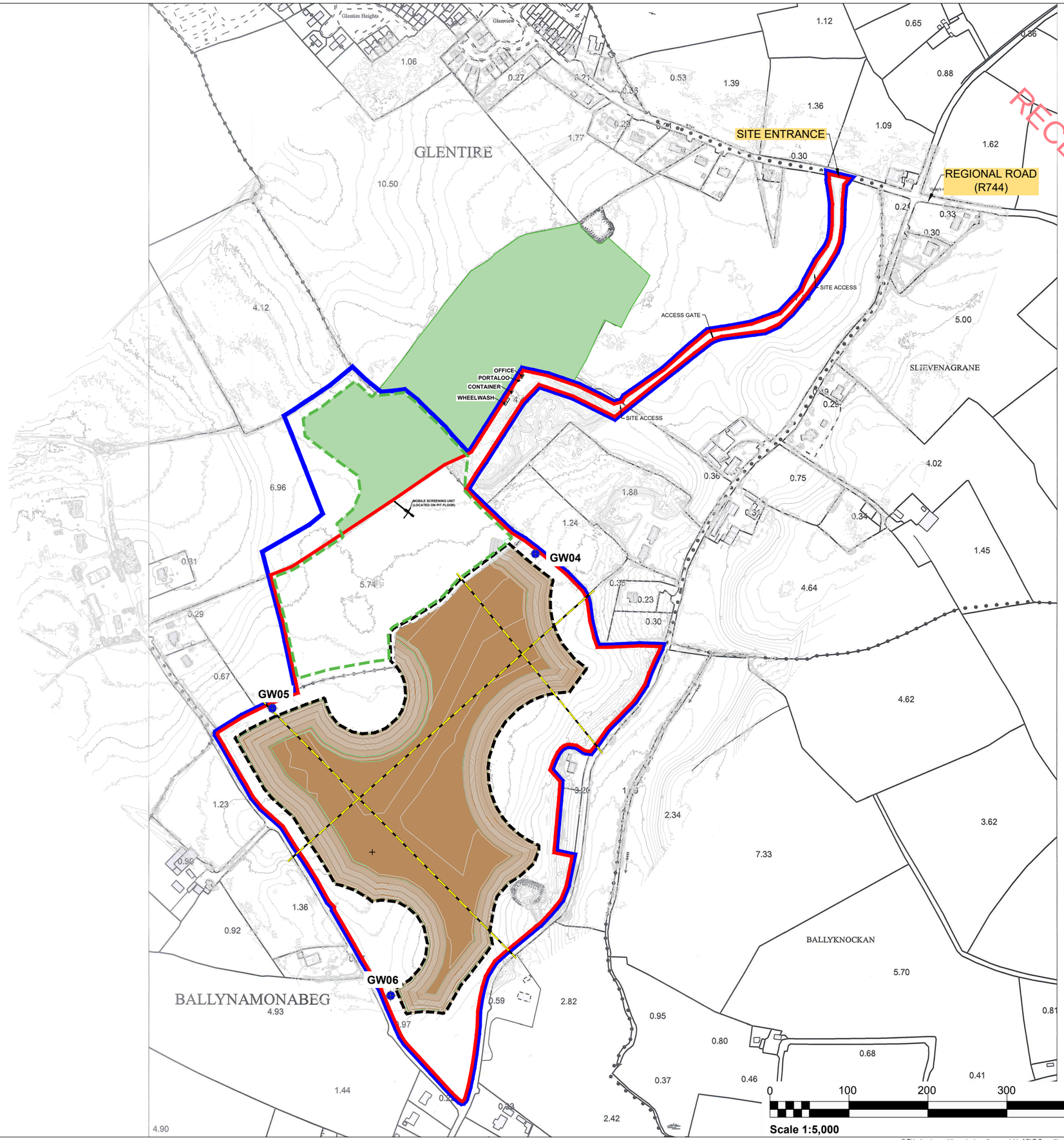
Designed	Drawn	Checked	Authorised
EW	EW	TP	TP
Date: 01/26	Date: 01/26	Date: 01/26	Date: 01/26

Drawing Number: **FIGURE 6-4** Rev.: **0**

\\slr.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\065860 Ballagh Extension PA EIAR\IE\AR\Volume-2 EIAR Report Figs Appends\06 Land Soils and Geology\Dwgs\CAD\Wking\065860_FIG 6-4 Bedrock Geology Map.dwg 27/01/2026

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N

0 100 200 300 400 500m

Scale 1:5,000

Notes:

1. *Based on 1:2,500 OSI Place Mapping - Map No. 5145-D & 5146-C*

Legend:

- LAND INTEREST AREA (c.27.2 Hectares)
- PLANNING APPLICATION AREA (c.23.2 Hectares)
- PROPOSED EXTRACTION AREA (c. 11.0 Hectares)
- PERMITTED EXTRACTION AREA (c. 5.9 Hectares) (P.REF. 2019-1259)
- GROUNDWATER MONITORING LOCATION

Rev	Amendments	Date	By	Chk	Auth

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Drawing Status & Suitability Code

Client
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Project
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Drawing Title
SITE LAYOUT AND BOREHOLE LOCATIONS

Scale	SLR Project No.
1:5,000 @ A3	065860.00001

Designed	Drawn	Checked	Authorised
ND	ND	PG	PG
Date	Date	Date	Date
01/26	01/26	01/26	01/26

Drawing Number
FIGURE 6-5

Rev.
0

\\dir.local\eu\Offices\IE\Dublin\SLR DATA\SLR Projects\0098 D'Arcy Anthony\065860 Ballagh Extension PA EIAR\EIAR\Volume-2 EIAR Report Figs Appends\06 Land Soils and Geology\Dwgs\CAD\Working\065860 FIG_6-5 Site Layout Map and Monitoring Locations.dwg 27/01/2026

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Appendix 6-A Borehole Logs (2025)

BOREHOLE LOG

BOREHOLE No **BH 4**

RECEIVED: 29/01/2026

Client: **Anthony D'Arcy Ltd.**

Project No:	Date:	Ground Level:	Co-ordinates:
501.065860.00001	18/08/2025	76.54m	E707744 N636703

Project: **Ballagh Pit**

Sheet 1 of 3

SAMPLES & TESTS					Water	STRATA				
Depth	Type No	Test Type	Test Result	RQD		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument Backfill
						76.14		0.40	Firm brown TOPSOIL	
								(2.40)	Medium dense brown slightly gravelly SAND	
						73.74		2.80		
								(10.20)	Medium dense light brown gravelly SAND	

Borehole Continued on Next Page

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Time	Depth	Casing Dpt	Casing Dia	Water Dpt	From	To	Hours	From	To	
18/08/2025	02:05			Start of shift							
18/08/2025	05:45	22.50	22.50	End of shift	Dry						
19/08/2025	08:10	22.50	22.50	Start of shift	0						
19/08/2025	10:25			End of shift							

All dimensions in metres	Contractor:	Method: Rotary open hole	Logged By:	Approved By:
Scale 1:65	Plant: Knebel HY79	Hole Size: 154mm		

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

BOREHOLE LOG

BOREHOLE No
BH 4

RECEIVED: 29/01/2026

Client:
Anthony D'Arcy Ltd.

Project No:	Date:	Ground Level:	Co-ordinates:
501.065860.00001	18/08/2025	76.54m	E707744 N636703

Project:
Ballagh Pit

Sheet
2 of 3

SAMPLES & TESTS					Water	STRATA				
Depth	Type No	Test Type	Test Result	RQD		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument Backfill
									Medium dense light brown gravelly SAND	
						63.54		13.00		
								(2.80)	Loose light brown SAND	
						60.74		15.80		
								(6.10)	Medium dense fine brown very silty SAND	

Borehole Continued on Next Page

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Time	Depth	Casing Dpt	Casing Dia	Water Dpt	From	To	Hours	From	To	

All dimensions in metres Scale 1:65	Contractor: Plant: Knebel HY79	Method: Rotary open hole Hole Size: 154mm	Logged By:	Approved By:

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

BOREHOLE LOG

BOREHOLE No **BH 4**

RECEIVED: 29/01/2026

Client: **Anthony D'Arcy Ltd.**

Project No:	Date:	Ground Level:	Co-ordinates:
501.065860.00001	18/08/2025	76.54m	E707744 N636703

Project: **Ballagh Pit**

Sheet 3 of 3

SAMPLES & TESTS					Water	STRATA				
Depth	Type No	Test Type	Test Result	RQD		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument Backfill
									Medium dense fine brown very silty SAND	
						54.64		21.90		
								(0.60)	Firm to stiff brownish grey CLAY	
						54.04		22.50		
									Borehole Complete at 22.50m	

21 22 23 24 25 26 27 28 29

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Time	Depth	Casing Dpt	Casing Dia	Water Dpt	From	To	Hours	From	To	

All dimensions in metres Scale 1:65	Contractor: Plant: Knebel HY79	Method: Rotary open hole Hole Size: 154mm	Logged By:	Approved By:

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

BOREHOLE LOG

BOREHOLE No **BH 5**

RECEIVED: 29/01/2026

Client: **Anthony D'Arcy Ltd.**

Project No:	Date:	Ground Level:	Co-ordinates:
501.065860.00001	18/08/2025	77.98m	E707414 N636515

Project: **Ballagh Pit**

Sheet 1 of 3

SAMPLES & TESTS					Water	STRATA				Instrument Backfill
Depth	Type No	Test Type	Test Result	RQD		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						77.58		0.40	Firm brown sandy TOPSOIL	
								(5.10)	Medium dense brown gravelly slightly silty SAND	
						72.48		5.50	Loose to Medium dense orangish brown SAND	

Borehole Continued on Next Page

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Time	Depth	Casing Dpt	Casing Dia	Water Dpt	From	To	Hours	From	To	
18/08/2025	08:50			Start of shift							
18/08/2025	02:05			End of shift							

All dimensions in metres	Contractor:	Method: Rotary open hole	Logged By:	Approved By:
Scale 1:65	Plant: Knebel HY79	Hole Size: 154mm		

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

BOREHOLE LOG

BOREHOLE No
BH 5

RECEIVED: 29/01/2026

Client:
Anthony D'Arcy Ltd.

Project No:	Date:	Ground Level:	Co-ordinates:
501.065860.00001	18/08/2025	77.98m	E707414 N636515

Project:
Ballagh Pit

Sheet
2 of 3

SAMPLES & TESTS					Water	STRATA				
Depth	Type No	Test Type	Test Result	RQD		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument Backfill
									Loose to Medium dense orangish brown SAND	
11										
12										
13										
14										
15								(15.00)		
16										
17										
18										
19										

Borehole Continued on Next Page

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Time	Depth	Casing Dpt	Casing Dia	Water Dpt	From	To	Hours	From	To	

All dimensions in metres Scale 1:65	Contractor: Plant: Knebel HY79	Method: Rotary open hole Hole Size: 154mm	Logged By:	Approved By:

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

BOREHOLE LOG

BOREHOLE No **BH 5**

RECEIVED: 29/01/2026

Client: **Anthony D'Arcy Ltd.**

Project No:	Date:	Ground Level:	Co-ordinates:
501.065860.00001	18/08/2025	77.98m	E707414 N636515

Project: **Ballagh Pit**

Sheet 3 of 3

SAMPLES & TESTS					Water	STRATA				Instrument Backfill
Depth	Type No	Test Type	Test Result	RQD		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
						57.48		20.50	Loose to Medium dense orangish brown SAND	
									Medium dense fine brown silty SAND	
								(6.00)		
						51.48		26.50		
								(0.60)	Stiff brown becoming grey CLAY	
						50.88		27.10		
									Borehole Complete at 27.10m	

21 22 23 24 25 26 27 28 29

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Time	Depth	Casing Dpt	Casing Dia	Water Dpt	From	To	Hours	From	To	

All dimensions in metres Scale 1:65	Contractor: Plant: Knebel HY79	Method: Rotary open hole Hole Size: 154mm	Logged By:	Approved By:

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

BOREHOLE LOG

BOREHOLE No **BH 6**

RECEIVED: 29/01/2026

Client: **Anthony D'Arcy Ltd.**

Project No:	Date:	Ground Level:	Co-ordinates:
501.065860.00001	19/08/2025	76.74m	E707555 N636144

Project: **Ballagh Pit**

Sheet 1 of 3

SAMPLES & TESTS					Water	STRATA				
Depth	Type No	Test Type	Test Result	RQD		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument Backfill
						76.49		0.25	Firm brown sandy TOPSOIL	
									Loose orangish brown SAND	
								(6.65)		
						69.84		6.90		
									Medium dense dark brown silty gravelly SAND	
								(1.60)		
						68.24		8.50		
									Loose to Medium dense light brown slightly gravelly SAND	

Borehole Continued on Next Page

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Time	Depth	Casing Dpt	Casing Dia	Water Dpt	From	To	Hours	From	To	
19/08/2025	11:00			Start of shift							
19/08/2025	03:00			End of shift							

All dimensions in metres	Contractor:	Method: Rotary open hole	Logged By:	Approved By:
Scale 1:65	Plant: Knebel HY79	Hole Size: 154mm		

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

BOREHOLE LOG

BOREHOLE No
BH 6

RECEIVED: 29/01/2026

Client:
Anthony D'Arcy Ltd.

Project No:	Date:	Ground Level:	Co-ordinates:
501.065860.00001	19/08/2025	76.74m	E707555 N636144

Project:
Ballagh Pit

Sheet
2 of 3

SAMPLES & TESTS					Water	STRATA				
Depth	Type No	Test Type	Test Result	RQD		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	Instrument Backfill
								(15.20)	Loose to Medium dense light brown slightly gravelly SAND	

11
12
13
14
15
16
17
18
19

Borehole Continued on Next Page

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Time	Depth	Casing Dpt	Casing Dia	Water Dpt	From	To	Hours	From	To	

All dimensions in metres Scale 1:65	Contractor: Plant: Knebel HY79	Method: Rotary open hole Hole Size: 154mm	Logged By:	Approved By:

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

BOREHOLE LOG

BOREHOLE No **BH 6**

RECEIVED: 29/01/2026

Client: **Anthony D'Arcy Ltd.**

Project No:	Date:	Ground Level:	Co-ordinates:
501.065860.00001	19/08/2025	76.74m	E707555 N636144

Project: **Ballagh Pit**

Sheet 3 of 3

SAMPLES & TESTS					Water	STRATA				Instrument Backfill
Depth	Type No	Test Type	Test Result	RQD		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION	
									Loose to Medium dense light brown slightly gravelly SAND	
						53.04		23.70		
								(3.30)	Medium dense fine brown silty gravelly SAND	
						49.74		27.00		
						49.24		(0.50) 27.50	Firm to stiff brown gravelly CLAY possible highly weathered rock	
									Borehole Complete at 27.50m	

21 22 23 24 25 26 27 28 29

Boring Progress and Water Observations						Chiselling			Water Added		General Remarks
Date	Time	Depth	Casing Dpt	Casing Dia	Water Dpt	From	To	Hours	From	To	

All dimensions in metres Scale 1:65	Contractor: Plant: Knebel HY79	Method: Rotary open hole Hole Size: 154mm	Logged By:	Approved By:

LOGGING HAS BEEN CARRIED OUT IN ACCORDANCE WITH BS5930:2015+A2:2020

RECEIVED: 29/01/2026

Appendix 6-B Geological Survey of Ireland Geological Heritage Programme Consultation Response

An Roinn Aeráide, Fuinnimh agus Comhshaoil
Department of Climate, Energy and the Environment

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

RECEIVED: 29/01/2026

Niamh Doyle,
SLR Consulting Ireland
7 Dundrum Business Park
Dublin, D14 N2Y7

14 October 2025

Re: Sand & Gravel Pit at Ballagh, Ballaghkeen, Co Wexford – consultation
Your Ref: SLR Project No. 065860.00001
Our Ref: 25/162

Dear Niamh,

Geological Survey Ireland is the national earth science agency and is a division of the Department of Climate, Energy and the Environment. 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 10 October 2025, concerning the Sand & Gravel Pit at Ballagh, Ballaghkeen, Co Wexford - consultation, 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	*Natural heritage*	
• Landslide Susceptibility Mapping	• Geoheritage (County Geological Sites)	
• Groundwater flooding	• Dimension Stone/Stone Built Ireland	
• Coastal vulnerability		
• Subsidence		
• Radon		

RECEIVED 29/01/2026

Geoheritage

Geological Survey Ireland would request that the operator might assist our geological heritage goals with the following (and ideally this would be written into the restoration / closure plan) and be included as a condition of planning as deemed appropriate by the planning authority:

1. Allowing access to sand and gravel sediment faces by appropriate scientists (upon request and with due regards to Health and Safety requirements) during quarrying to check for interesting new stratigraphies / relationships as they might become exposed and to establish if the sand and gravel pit site is worthy of recognition post extraction and through aftercare/restoration planning.

2. If deemed appropriate in (1) above, leaving some representative sections of sediment faces at the end of the pit life or inclusion of information panels to promote the geology to the public or develop tourism or educational resources if appropriate depending on the future use of the site. Natural exposures are few, or deeply weathered, this measure would permit on-going improvement of geological knowledge of the subsurface.

The Geoheritage Programme tries to promote a partnership between geological heritage and active quarrying, with such measures as those outlined in the 'Geological Heritage Guidelines for the Extractive Industry', which can be downloaded here. This document, written in association with Irish Concrete Federation, acts as a comprehensive guide in the sustainable extraction of natural resources while preserving the geological heritage of 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.

Should any significant sand and gravel stratigraphies uncovered or faces be created, we would ask that they will be designed to remain visible as exposure rather than covered with soil and vegetated, in accordance with safety guidelines and engineering constraints. In areas where natural exposures are few, or deeply weathered, this measure would permit on-going improvement of geological knowledge of the subsurface and could be included as additional sites of the geoheritage dataset, if appropriate.

Alternatively, we ask that a digital photographic record of significant new excavations could be provided. Potential visits from Geological Survey Ireland to personally document exposures could also be arranged.

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.

RECEIVED: 29/01/2026