7 LAND, SOILS AND GEOLOGY

7.1 Introduction

This chapter of the EIAR was prepared to assess the potential significant effects of the Proposed Development on the receiving land, soils and geology and sets out any required mitigation measures where appropriate.

The principal objectives of this chapter are to identify:

- Land, soils, and geological characteristics of the receiving environment at the site.
- Potential impacts that the Proposed Development may have on land, soils and geology including “worst case” scenario assessment.
- Potential constraints that the environmental attributes may place on the Proposed Development.
- Required mitigation measures which may be necessary to minimise any adverse impacts related to the Proposed Development.
- Evaluate the significance of any residual impacts.

This chapter of the EIAR should be read in conjunction with Chapter 5 Population and Human Health, Chapter 6 Biodiversity, Chapter 8 Hydrology and Hydrogeology, Chapter 9 Air Quality, Chapter 11 Landscape and Visual Impact, Chapter 15 Material Assets: Waste and Utilities and Chapter 14 Material Assets: Traffic and Transport of the EIAR and other information provided by the Applicant pertaining to the design proposals for the Proposed Development.

7.1.1 Quality Assurance and Competency of Experts

The chapter was prepared by Nuria Manzanas a Principal Consultant of Enviroguide Consulting with 11 years’ experience in contaminated land and hydrogeological assessments. This chapter of the EIAR has been reviewed by Gareth Carroll BA, BEng, MIEnvSc, CEnv a Principal Consultant of Enviroguide Consulting. Gareth is a Chartered Environmentalist with over 12 years’ experience in preparing environmental assessments for a range of project types and geological and hydrogeological site settings.

7.2 Assessment Methodology

7.2.1 Relevant Legislation and Guidance

The methodology adopted for the assessment will take cognisance of relevant guidelines, in particular the following:

- Environmental Protection Agency, May 2022. Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022).
- Institute of Geologists of Ireland Guidelines, 2002. Geology in Environmental Impact Statements, A Guide (IGI, 2002).
- Institute of Geologists of Ireland Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements (IGI, 2013).
- National Roads Authority, 2009. Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA, 2009).
- Fingal County Council (FCC, 2023). Fingal County Development Plan 2023-2029.

7.2.2 Phased Approach

A phased approach was adopted for this EIAR in accordance with the Environmental Protection Agency (EPA) and Institute of Geologists of Ireland (IGI) guidelines as set out above and is described in the following sections.

Element 1: An assessment and impact determination stage was carried out by Enviroguide Consulting to establish the project location, type and scale of the development, the baseline conditions, and the type of land, soils and geological environment, to establish the activities associated with the Proposed Development. This element of the assessment also included developing the Conceptual Site Model (CSM) for the Site and receiving environment.

The study area, for the purposes of assessing the baseline conditions for the Land, Soils and Geology Chapter of the EIAR, extends beyond the site boundaries and includes potential receptors with which there may be a pathway to/from the Proposed Development and receptors that may be indirectly impacted by the Proposed Development. The extent of the wider study area was based on the IGI, 2013 Guidelines which recommend a minimum distance of 2.0km from the site.

The desk study involved collecting all the relevant data for the Proposed Development site and surrounding area including published information and details pertaining to the Proposed Development provided by the applicant and design team.

A site walkover survey to establish the environmental site setting and baseline conditions at the Proposed Development site relevant to the land, soil and geology environment was undertaken by Enviroguide Consulting on the 27th of March 2025.

The Element 1 stage of the assessment was completed by Enviroguide and included the review of the following sources of information:

- Environmental Protection Agency (EPA) webmapping 2025 (EPA, 2025).
- Geological Survey of Ireland (GSI) Datasets Public Viewer and Groundwater webmapping, 2025 (GSI, 2025).
- Google Earth Mapping and Imagery, 2025 (Google Earth, 2025).
- Ordnance Survey Ireland (OSI) webmapping, 2025 (OSI, 2025).
- National Parks and Wildlife Services (NPWS) webmapping, 2025 (NPWS, 2025).
- Teagasc webmapping, 2025 (Teagasc, 2025).
- Information provided by the Applicant pertaining to the design proposals for the Proposed Development.

Element 2: Involves direct and indirect site investigation and studies stage where necessary to refine the CSM developed as part of Element 1 and evaluate the potential impacts associated with the Proposed Development. Site investigation (including trial pitting and soil sampling) was undertaken at the Plot 1 (Luttrellstown Gate Phase 2) site by Site Investigations Ltd. (SIL) in February 2025 (SIL, 2025. Molloy's Field, Luttrellstown, Dublin 15 Site Investigation). Site investigations (including borehole drilling, trial pitting and soil sampling) were also completed by SIL between November 2019 and December 2019 (SIL, 2019. Kellystown, Porterstown, Dublin 15 Site Investigation Report) on lands adjoining the southern eastern boundaries of the Plot 2 (LRD Scheme) site at the Kellystown Strategic Housing Development (currently under construction by the Applicant under ABP-312318-21, as amended by LRD0034/S3). The results of the site investigations were used to identify and assess the existing ground conditions and geological environment at the site of the Proposed Development. The site investigation reports (SIL, 2025 and SIL, 2019) are included in Appendix 7.1 and Appendix 7.2 of this EIAR.

Element 3: Evaluation of Mitigation Measures, Residual Impacts and Final Impact Assessment were based on the outcome of the information gathered in Element 1 and Element 2 of the assessment. Mitigation measures to address all identified adverse impacts that were identified in Element 1 and Element 2 of the assessment were considered in relation to the Construction stage and Operational stage of the Proposed Development. These mitigation measures were then considered in the impact assessment to identify any residual impacts.

Element 4: Completion of Chapter 7 Land, Soil and Geology of the EIAR which includes all the associated figures and documents.

7.2.3 Description of Importance of the Receiving Environment

The Transport Infrastructure Ireland (TII) (formerly National Roads Authority (NRA)) criteria for rating of the importance of geological features at the site as documented in the NRA Guidelines on Procedures for the Assessment and Treatment of Geology, Hydrology and Hydrogeology for National Road Schemes (NRA, 2009), are summarised in Table 7.1.

Table 7.1 - Criteria for Rating Site Importance of Geological Features

Importance	Criteria	Typical Example
Very High	Attribute has a high quality, significance, or value on a regional or national scale. Degree or extent of soil contamination is significant on a national or regional scale. Volume of peat and/or soft organic soil underlying route is significant on a national or regional scale.	Geological feature rare on a regional or national scale (NHA). Large existing quarry or pit. Proven economically extractable mineral resource.
High	Attribute has a high quality, significance, or value on a local scale. Degree or extent of soil contamination is significant on a local scale. Volume of peat and/or soft organic soil underlying route is significant on a local scale.	Contaminated soil on-site with previous heavy industrial usage. Large recent landfill site for mixed wastes. Geological feature of high value on a local scale (County Geological Site). Well drained and/or high fertility soils. Moderately sized existing quarry or pit. Marginally economic extractable mineral resource.
Medium	Attribute has a medium quality, significance, or value on a local scale. Degree or extent of soil contamination is moderate on a local scale. Volume of peat and/or soft organic soil underlying route is moderate on a local scale.	Contaminated soil on-site with previous light industrial usage. Small recent landfill site for mixed wastes. Moderately drained and/or moderate fertility soils. Small existing quarry or pit. Sub-economic extractable mineral resource.
Low	Attribute has a low quality, significance, or value on a local scale. Degree or extent of soil contamination is minor on a local scale. Volume of peat and/or soft organic soil underlying route is small on a local scale.	Large historical and/or recent site for construction and demolition wastes. Small historical and/or recent landfill site for construction and demolition wastes. Poorly drained and/or low fertility soils. Uneconomically extractable mineral resource.

7.2.4 Description and Assessment of Potential Impact

Impacts will vary in quality from negative, to neutral or positive. The effects of impacts will vary in significance on the receiving environment. Effects will also vary in duration. The terminology and methodology used for assessing the 'impact' significance and the corresponding 'effect' throughout

this chapter is described in Table 7.2 in accordance with EPA, 2022 guidelines on the information to be contained in EIARs.

Table 7.2 - Assessment of Potential Terminology and Methodology

Quality of Effects/ Impacts	**Definition**
Negative	A change which reduces the quality of the environment
Neutral	No effects or effects that are imperceptible, within the normal bounds of variation or within the margin of forecasting error.
Positive	A change that improves the quality of the environment
Significance of Effects / Impacts	**Definition**
Imperceptible	An effect capable of measurement but without significant consequences.
Not Significant	An effect which causes noticeable changes in the character of the environment but without significant consequences.
Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities.
Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends.
Significant	An effect which, by its character, magnitude, duration, or intensity alters a sensitive aspect of the environment.
Very Significant	An effect which, by its character, magnitude, duration or intensity significantly alters a sensitive aspect of the environment.
Profound	An effect which obliterates sensitive characteristics.
Extent and Context of Effects	**Definition**
Extent	Describe the size of the area, the number of sites and the proportion of a population affected by an effect.
Context	Describe whether the extent, duration or frequency will conform or contrast with established (baseline) conditions.
Probability of Effects	**Definition**
Likely Effects	The effects that can reasonably be expected to occur because of the planned project if all mitigation measures are properly implemented.
Unlikely Effects	The effects that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented.
Duration of Effects / Impacts	**Definition**
Momentary	Effects lasting from seconds to minutes
Brief	Effects lasting less than a day
Temporary	Effects lasting one year or less
Short-term	Effects lasting one to seven years

Medium-term	Effects lasting seven to fifteen years
Long-term	Effects lasting fifteen to sixty years
Permanent	Effects lasting over sixty years
Reversible	Effects that can be undone, for example through remediation or restoration
Brief	Effects lasting less than a day
Types of Effects	**Definition**
Indirect Effects	Effects on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway
Cumulative Effects	he addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects.
"Do-nothing" Effects	The environment as it would be in the future should the subject project not be carried out
"Worst-case" Effects	he effects arising from a project in the case where mitigation measures substantially fail.
Indeterminable Effects	When the full consequences of a change in the environment cannot be described.
Irreversible Effects	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost
Residual Effects	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.

Figure 7.1 identifies how comparing the character of the predicted effect to the sensitivity of the receiving environment can determine the significance of the effect.

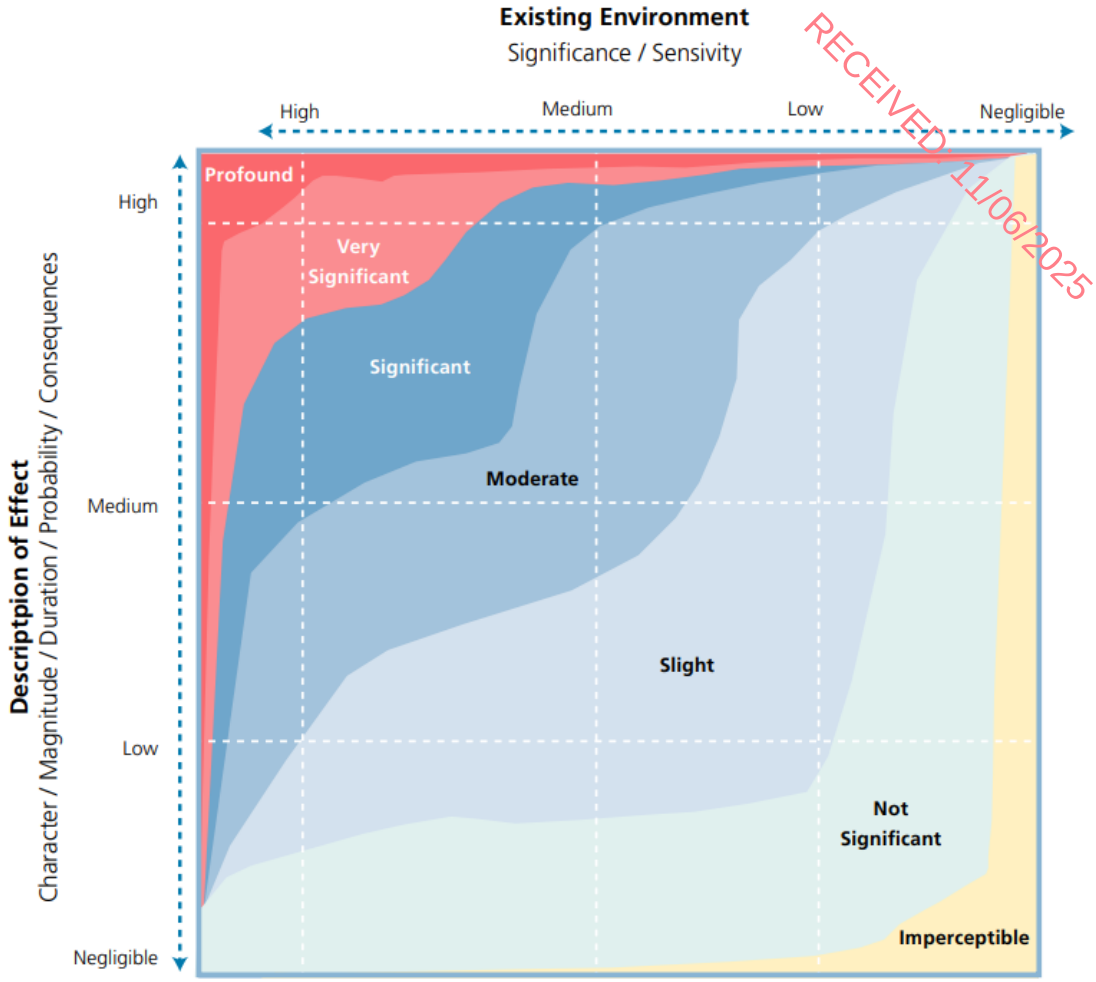

Figure 7.1: Determining Significance

7.3 Receiving Environment

7.3.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

7.3.1.1 Site Location and Description

The site of the Proposed Development is located to the south of Clonsilla Town, adjacent to the west of Carpenterstown and to the southwest of Blanchardstown. It is accessible through the R121 (regional road).

The site of the Proposed Development comprises a field of undeveloped grasslands with no evidence of previous structures or development.

As set out in the Fingal County Development Plan 2023-2029 the lands across the site, which is within the Kellystown Local Area Plan (LAP) Development Area 1 - Eastern Area, are zoned as 'RA – provide for new residential communities subject to the provision of the necessary social and physical infrastructure'. Therefore, the Proposed Development is considered to meet the zoning objectives of the Fingal County Development Plan 2023-2029.

The site is bounded to the north by Midland Great Western Maynooth Rail line, to the south and east by the Kellystown Strategic Housing Development (currently under construction by the Applicant under ABP-312318-21, as amended by LRD0034/S3) and to the west by agricultural lands.

The site location is presented in Figure 7.2 and the current layout of the site is presented in Figure 7.3

A full description of the site location and surrounding land use is presented in Chapter 2 of this EIAR.

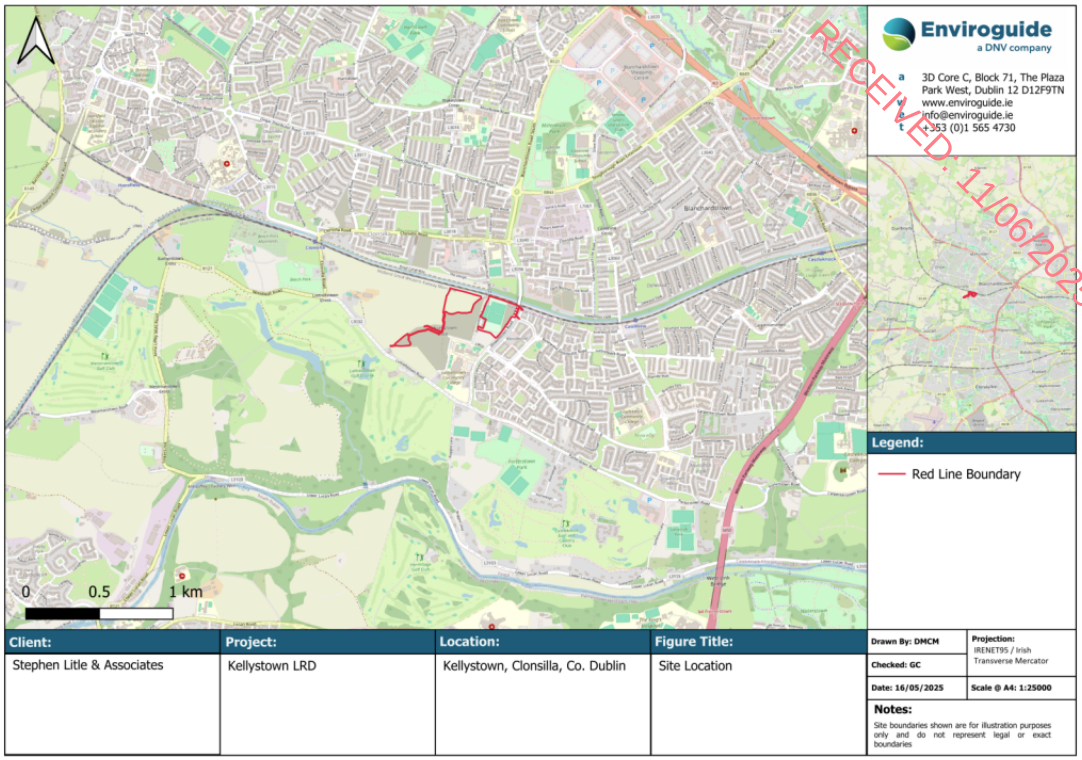

Figure 7.2: Site Locations (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

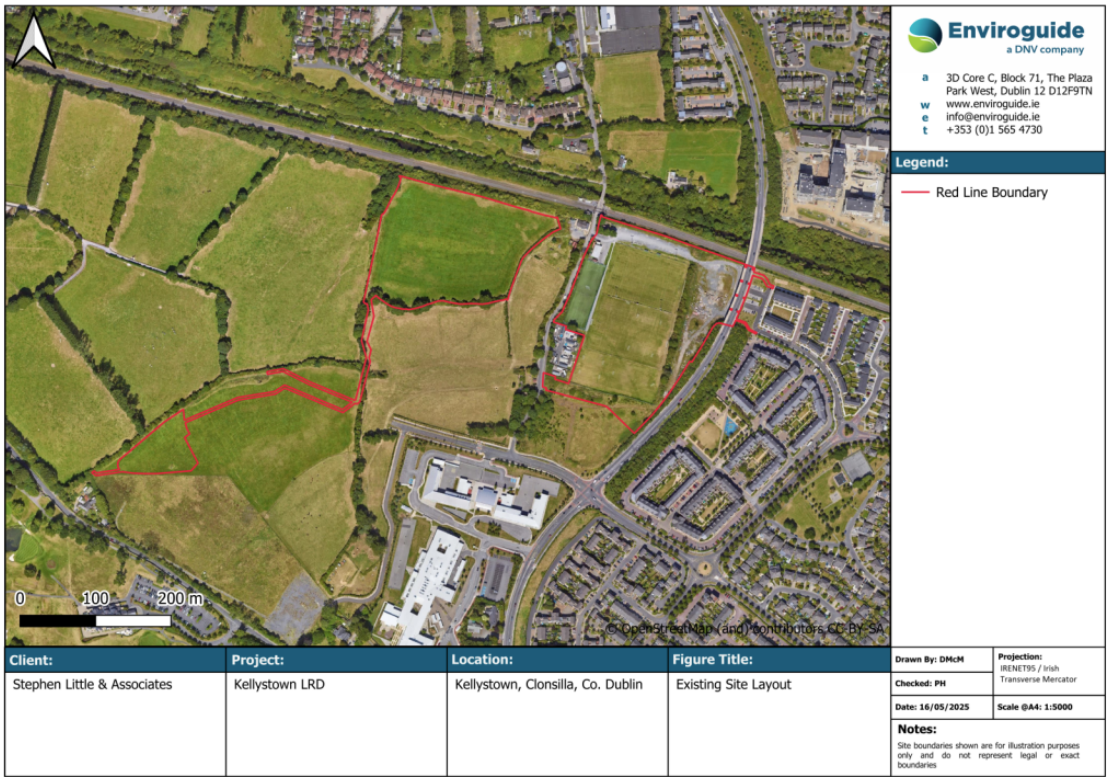

Figure 7.3: Current Site Layouts (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

7.3.1.2 Historical Land Use

Historical mapping and aerial photography available from the Ordnance Survey of Ireland website (OSI, 2024) and Google Earth (Google Earth, 2025) were reviewed and key observations on-site and off-site are summarised in Table 7.3.

Table 7.3 - Historical Land Use

Date	Information Source	Site Description
1837-1842	OSI map 6inch	**Onsite:** The Proposed Development site is shown as an open field. The site is bounded by the canal north of the site. There is a visible pond within the northwestern part of the site. **Offsite:** The surrounding lands are predominantly open fields divided by field boundaries. There are scattered houses in the vicinity of the site. The canal and the Great Southern Railways are located adjacent to the northern boundary of the site. There are two (2 No.) historic quarries in the close vicinity of the site. The Clonsilla school is located north of the site and south of the Great Southern Railways. The Porterstown House is located south of the Proposed Development site.
1888-1913	OSI map 25inch	**Onsite:** No significant changes. **Offsite:** No significant changes.
1995	OSI Aerial photography	**Onsite:** No significant changes. **Offsite:** The lands to the north and further east have been significantly developed. However, the lands adjoining the south, west and adjacent to the east boundary of the Proposed Development site remain undeveloped.
1996-2000	OSI Aerial photography	**Onsite:** No significant changes. **Offsite:** The lands to the north and east boundaries have been significantly developed. However, the lands adjacent to the south and west boundaries of the Proposed Development site remain undeveloped.
2001-2005	OSI Aerial photography	**Onsite:** No significant changes. **Offsite:** The developed areas with high residential dwellings have significantly increased. In addition, the lands located east of the Proposed Development have been further developed.
2006-2012	OSI Aerial Photography	**Onsite**: No significant changes. **Offsite:** No significant changes.
2013-2018	OSI Aerial Photography	**Onsite**: No significant changes. **Offsite:** The Community National School and the Luttrellstown Community College have been developed south of the site. The football pitch located east of the site has been completely established.
2025	Google Maps Photography	**Onsite**: No significant changes. **Offsite:** Development started during 2024 in the fields adjacent to the south and east boundaries of the site.

7.3.1.3 Topography

As documented in the Engineering Assessment Report prepared by Waterman Moylan Consulting Engineers Limited (WM, 2025a; submitted with the planning application under separate cover), the topographical survey carried out indicates that the site generally falls from north to south, with a high point of approximately 63.41mOD (metres above ordnance datum) at the north of the site and a low point of approximately 60.66mOD at the south of the site.

7.3.1.4 Soils

The soils beneath the majority of the site are mapped by Teagasc (Teagasc, 2025) as mineral poorly drained (mainly basic), which are classified as Surface water Gleys, Ground water Gleys (IFS Soil Code: BminPD) derived from mainly calcareous parent materials described as till derived chiefly from limestone (TLs).

The most northern part of the site is mapped as shallow well drained mineral (mainly basic) which are classified as Renzinas and Lithosols (IFS Soil Code: BminSW) derived from mainly calcareous parent materials described as Bedrock at surface-Calcareous (RckCa).

The soils beneath the site are presented in Figure 7.4.

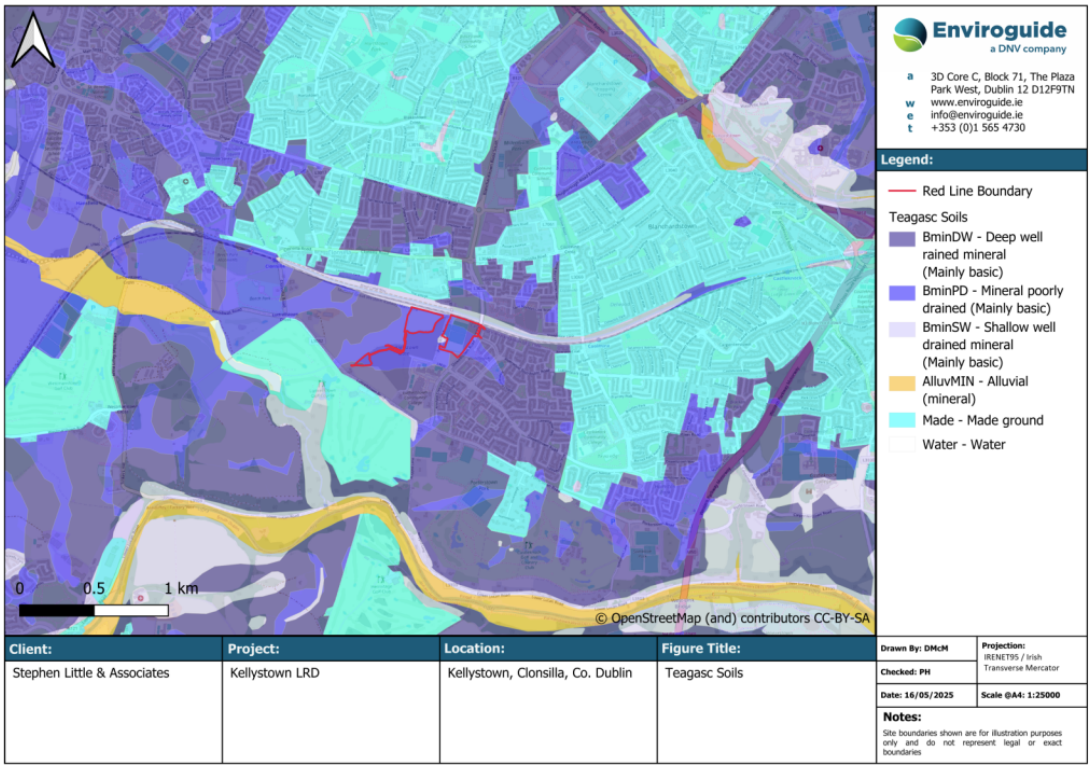

Figure 7.4: Teagasc Soils showing Plot 1 and Plot 2

7.3.1.5 Quaternary Deposits

The subsoil or quaternary deposits beneath the site are mapped by the GSI (GSI, 2025) as till derived from limestones (TLs).

The quaternary sediments beneath the site are presented in Figure 7.5.

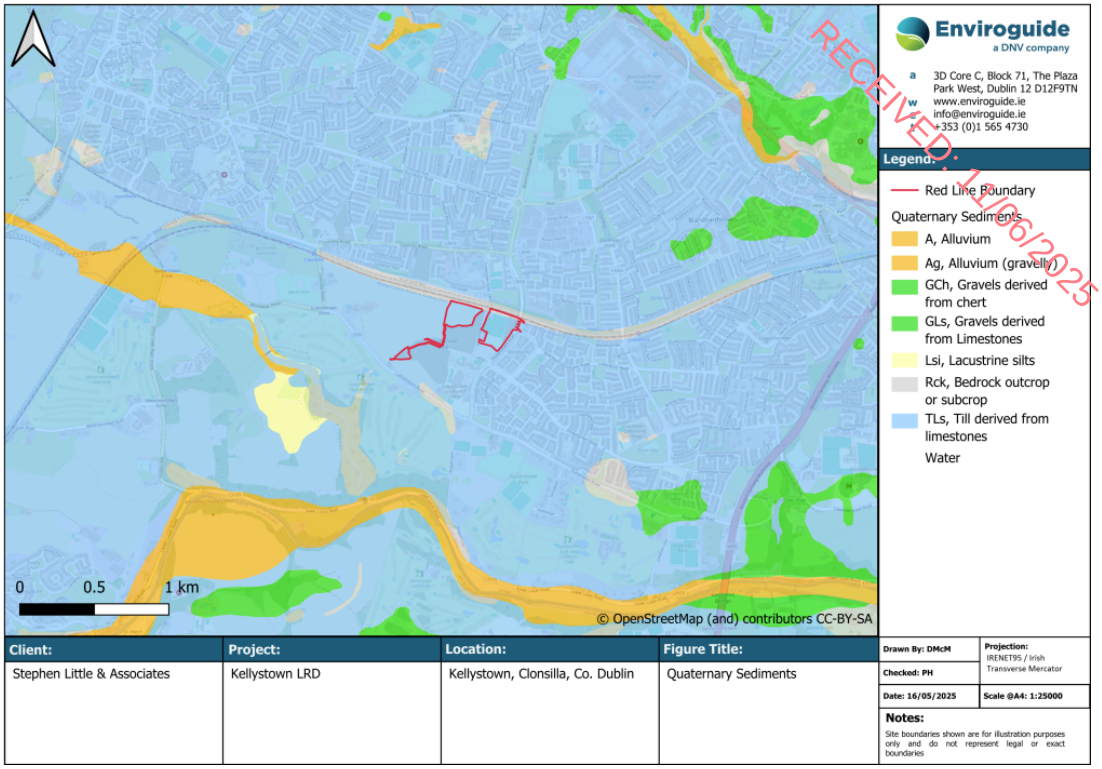

Figure 7.5: Quaternary Soils (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)2

7.3.1.6 Quaternary Geomorphology

Two (2 No.) deglacial hummocky sand and gravel have been identified approximately 1.61km north and 1.71km northeast of the site, respectively (GSI, 2025). A striae has been identified approximately 0.93km east of the site. There is a subglacial landform (Crag-and-Tail) approximately 0.77km south of the site. There are also undifferentiated meltwater channels approximately 0.63km and 1.14km southwest of the site. The meltwater channels are orientated in a northeast-to-southwest direction and northwest-to-south direction, respectively (GSI, 2025).

7.3.1.7 Bedrock Geology

The bedrock beneath the northern half of the site is mapped by the GSI (GSI, 2025) as the Lucan Formation (code: CDLUCN) described as dark limestone & shale (`calp). The bedrock beneath the southern half of the site is classified as the Tober Colleen Formation (code: CDTOBE) which is described as calcareous shale, limestone conglomerate.

While there is no bedrock outcrops mapped within the site boundary, there are a number of bedrock outcrops mapped by the GSI (GSI, 2024) within a 2km radius of the site. The closest are located immediately north of the site along the railway tracks adjacent to the northern boundary of the site.

The bedrock geology beneath the site is presented in Figure 7.6.

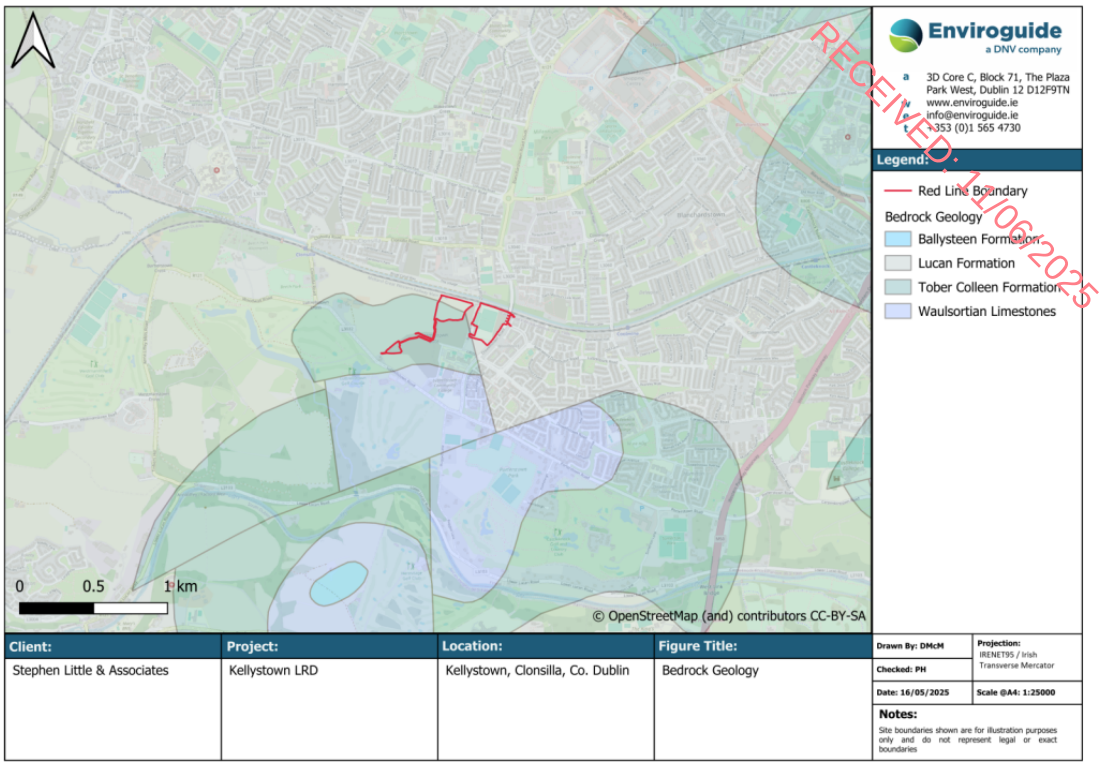

Figure 7.6: Bedrock Geology (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

7.3.1.8 Site Investigations

Ground Conditions

The soils and geology encountered during the site investigation (SIL, 2025) are available in Appendix 7.1 and are summarised as follows:

- The natural soils are dominated by cohesive brown (slightly) sandy (slightly) gravelly CLAY with cobble content increasing with depth.
- TP03 and TP04 in the east of the site encountered shallow obstructions at 0.70 meters below ground level (mbGL) and 1.70mbGL, respectively.
- The dynamic probes recorded N100 values of 2 around 1.00mbgl and then increased. DP02 did record a thin soft layer at 5.00mbgl before increasing and terminating at 6.40mbgl.
- The laboratory tests of the cohesive soils show CLAY soils with low to intermediate plasticity. The particle size distribution curves were poorly sorted straight-line curves with 20% to 75% fines content in the cohesive soils.

Groundwater was not encountered during trial pit excavations which extended to a maximum depth of to 2.1 mbGL. As documented in the site investigation report (SIL, 2025), *'Based on this information at the exploratory hole locations to date, it is considered likely that any shallow ingress (less than 2.00mbgl) into excavations of the CLAY will be slow to medium. If granular soils are encountered in shallow excavations, then the possibility of water ingressing into an excavation increases.'*

Soil Analytical Results

As documented in the site investigation report (SIL, 2025) , a total of twenty-one (21No.) soil samples collected were analysed for a suite of parameters suitable to determine the suitability of soils for disposal to a landfill. The soil analytical data for soil samples collected across the Site are provided in the site investigation report (SIL, 2025) available in Appendix 7.1

Based on the soil and soil leachate analysis results, all twenty-one (21No.) samples were classified as non-hazardous using HazWasteOnline™ software and meet the meet the waste acceptance criteria (WAC) for non-hazardous landfills as stipulated in the European Landfill Directive (Council Directive 1999/31/EC of 26 April 1999). Furthermore, the leachate suite results indicated that the soils tested would generally meet the waste acceptance criteria (WAC) for inert landfill. The sample from TP01 recorded a total organic carbon value of 3.1%, which is 0.1% above the inert threshold, which was associated to natural sources.

Based on a review of the results, there is little evidence of significant anthropogenic contamination in sampled soils:

- The reported concentration of benzene, toluene, ethylbenzene, m/p-xylene and o-xylene (BTEX), were less than the laboratory Limit of Detection (LOD).
- Low levels of Polycyclic Aromatic Hydrocarbons (PAHs) were reported at two (2No.) sample locations (TP01 (at 0.5mbGL) and TP03(at 0.5mbGL)) with concentrations ranging from 1.6mg/kg to 0.203mg/kg. The reported concentrations of PAHs at remaining sample locations were below the laboratory LOD.
- The reported concentration of Polychlorinated Biphenyl (PCBs) were reported below the laboratory LOD at all sample locations.
- Low levels of mineral oil were reported at two (2No.) sample locations with concentrations ranging from 8.74mg/kg to 5.57mg/kg. The reported concentrations of mineral oil at remaining sample locations were below the laboratory LOD.
- Low levels of Total Petroleum Hydrocarbons (TPH) were reported at one (1No.) sample locations with a concentration of 211mg/kg. The reported concentrations of TPH at remaining sample locations were reported below the laboratory LOD.

It is noted that samples were not screened for the presence of asbestos.

7.3.1.9 Geochemical Domain

The GSI along with the EPA have developed geochemically appropriate levels (GALs) for soil recovery facilities across Ireland specifically in relation to metals and metalloids in uncontaminated soil and stone (GSI, 2025). There are a total of seven defined domains across the country. The GSI (GSI, 2025) defined Geochemical Domains map indicates that the site of the Proposed Development is located within Domain 2 which is characterised as 'Carboniferous limestones, shales and related rocks'.

A summary of the metals values for Domain 2 are presented below in Table 6.4.

Table 6.4: Geochemically Appropriate Levels for Domain 2

Element	Units	Value
Arsenic	mg/kg	24.90
Cadmium	mg/kg	3.28
Chromium	mg/kg	50.30
Copper	mg/kg	63.50
Mercury	mg/kg	0.36
Nickel	mg/kg	61.90
Lead	mg/kg	86.10
Zinc	mg/kg	197.00

7.3.1.10 Radon

The Radon Risk Map of Ireland (EPA, 2025) shows a prediction of the number of the houses in any one area that are likely to have high radon levels. The map is based on an analysis of indoor radon measurements plus geological information including, bedrock type, quaternary geology, soil permeability and aquifer type.

The majority of the site is mapped by the EPA (EPA, 2025) as being in an area where 'about 1 in 10 homes in this area is likely to have high radon levels' or medium radon area. A small part of the site along the northern boundary has been classified as being in an area where 'about 1 in 5 homes in this area is likely to have high radon levels' or high radon area.

The EPA cite the national reference level for radon as 200 Bq/m3 and a High Radon Area where more than 10% of homes may have more than the reference level of radioactivity. As more than 10% of the houses in the area are mapped by the EPA as being over this reference level it indicates that the site is considered a High Radon Area (EPA, 2025). It is noted that a high radon level can be found in any home, in any part of the country, but these homes are more likely to be located in High Radon Areas.

7.3.1.11 Geohazards

The GSI (GSI, 2025) records for karst features indicate that there are no karst features within the 2km radius of the Proposed Development site. The closest karst feature (spring - St. Columbs Well) to the site is located approximately 4.94km southwest of the site.

The site of the Proposed Development and surrounding lands are located within an area with a 'low' landslide susceptibility and along the northern boundary of the site, the area is classified a 'low (inferred)' (GSI, 2025). There are no landslides recorded on the GSI database at the site (GSI, 2025). The closest recorded event, which was associated with a minor landslide at the rear of the cement factory named 'Strawberry beds landslide' is approximately 2.4km southwest of the site.

In Ireland, seismic activity is recorded by the Irish National Seismic Network operated by Dublin Institute for Advanced Studies (DIAS) which has been recording seismic events in Ireland since 1978. There are six permanent broadband seismic recording stations in Ireland operated by DIAS. Records since 2010 show that the majority of recorded seismic events were associated with quarry blasts and no recent events have been recorded within 2km of the site or the Greater Dublin Area.

7.3.1.12 Geological Heritage Sites

There are no geological heritage sites mapped by the GSI (GSI, 2025) at the site or within the 2km radius of the site. The closest identified geological heritage site is described as the Liffey Valley Centre Road Sections (Site Code: SD007) located approximately 2.46km south of the site (refer to Figure 7.7).

There are also six (6 No.) historic pits and quarry locations mapped within the 2km radius of the site.

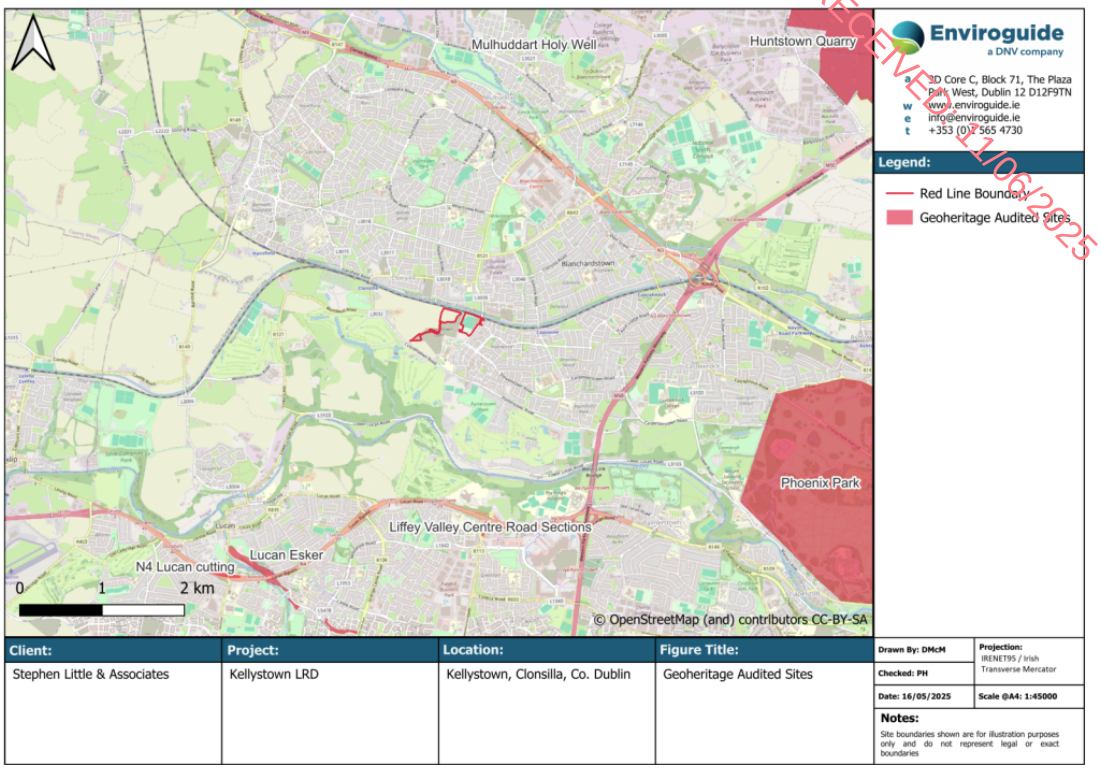

Figure 7.7: Geological Heritage Sites (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

7.3.1.13 Economic Geology

The lands beneath the site are mapped by the GSI (GSI, 2025) as having no mapped granular aggregate potential (refer to Figure 7.8).

The bedrock beneath the majority of the site has been identified by the GSI (GSI, 2025) as having a 'high potential' for crushed rock aggregate. Whereas a small portion along the northern boundary of the site is classified as having 'very high potential' (refer to Figure 7.9).

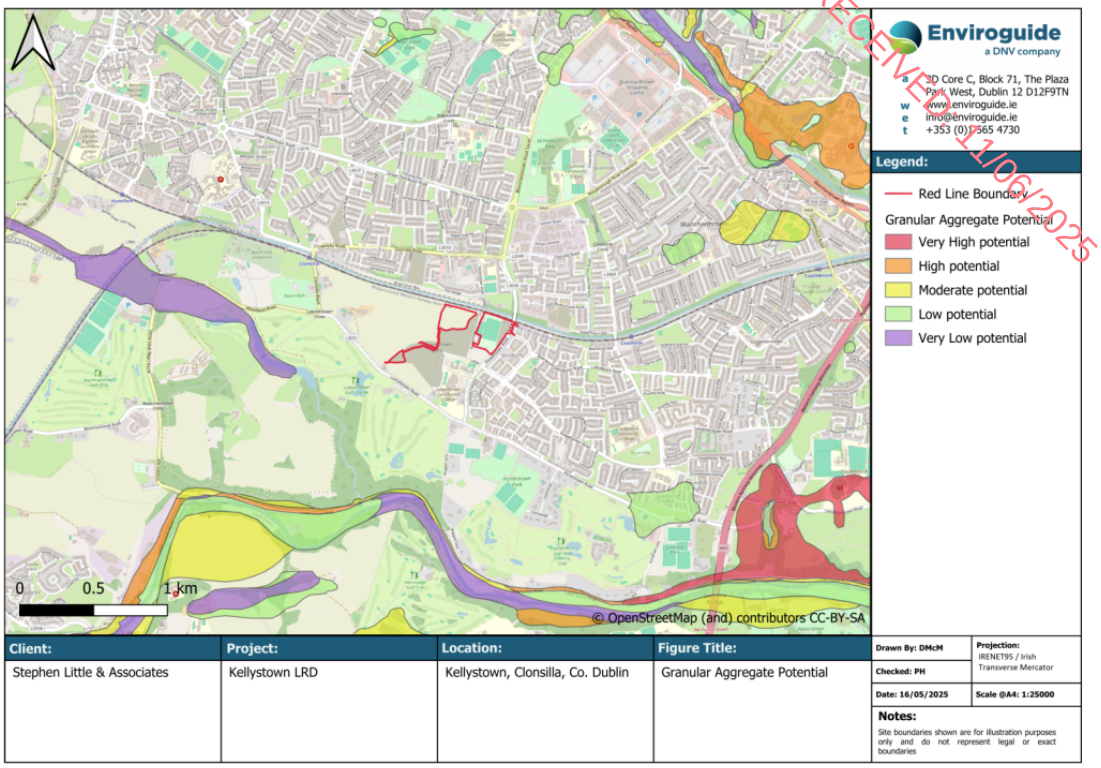

Figure 7.8: Granular Aggregate Potential (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

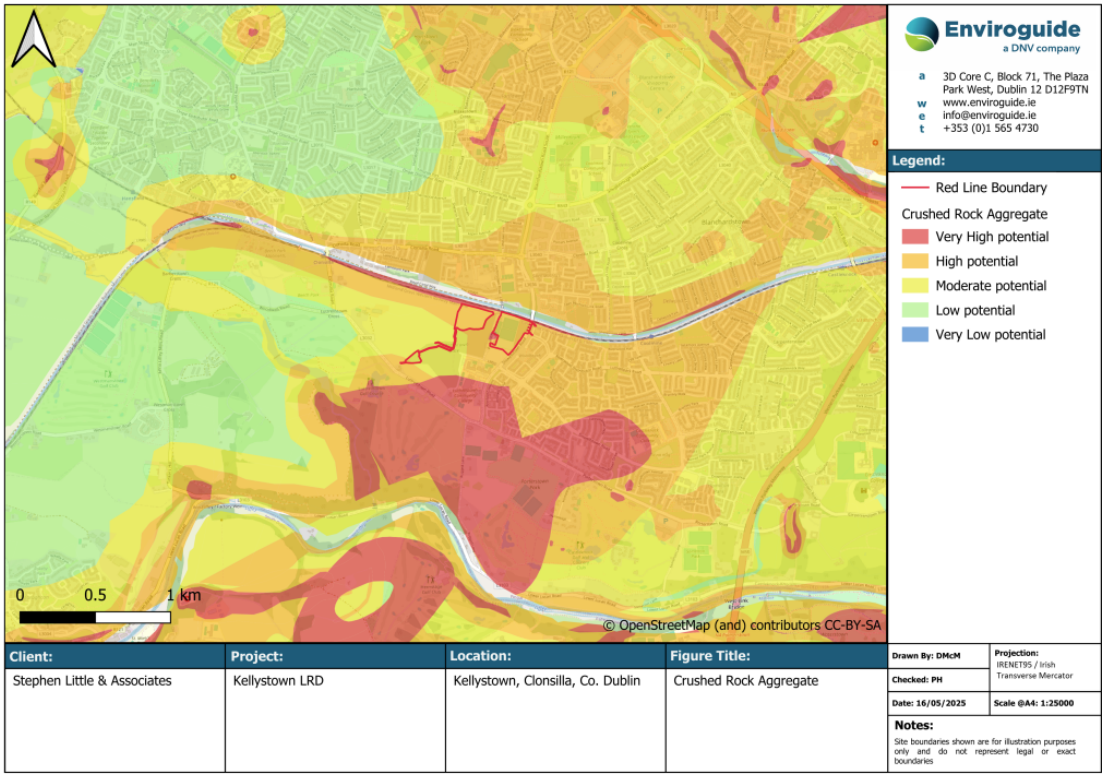

Figure 7.9: Crushed Rock Potential (Plot 1 (Luttrellstown Gate Phase 2) to the left; Plot 2 (LRD Scheme) to the right)

7.3.1.14 Importance of Baseline Environment

The site of the Proposed Development primarily comprises undeveloped grasslands. The subsoils are mapped by the GSI (GSI, 2025) as having no granular aggregate potential. The bedrock is classified as having high aggregate extractive potential across the majority of the site with the exception of a small area along the northern boundary of the site which is identified by the GSI (GSI, 2025) as having 'very high potential'.

Taking into account the attributes of the soil and geology underlying the site, the absence of geological heritage sites, quarries and pits within the site, and in accordance with the TII Guidance as documented by the NRA (NRA, 2009) and as outlined in Table 7.1, the soil underlying the site of the Proposed Development would be rated as having an overall 'low' to 'medium' geological importance.

7.3.2 Proposed Development – Plot 2 (LRD Scheme)

7.3.2.1 Site Location and Description

The site of the Proposed Development is located to the south of Clonsilla Town, adjacent to the west of Carpenterstown and to the southwest of Blanchardstown. It is accessible through the R121 (regional road).

The majority of the site of the Proposed Development comprises a football pitch (St. Mochtas FC) and associated infrastructure including two (2No.) astroturf pitches, hardstanding area for parking and a small clubhouse and shed. While the southern portion of the site comprises undeveloped grasslands.

As set out in the Fingal County Development Plan 2023-2029 the lands across the site, which is within the Kellystown Local Area Plan (LAP) Development Area 1 - Eastern Area, are zoned as 'RA – provide for new residential communities subject to the provision of the necessary social and physical infrastructure'. Therefore, the Proposed Development is considered to meet the zoning objectives of the Fingal County Development Plan 2023-2029.

The site is bounded to the north by the Midland Great Western Main Line, to the east by Diswelstown Road, to the south by the Kellystown Strategic Housing Development (currently under construction by the Applicant under ABP-312318-21) and to the west by a laneway and the St. Brigid's Lawns Halting Site.

The site location and current layout of the site is presented in Figure 7.2 and Figure 7.3 in Section 7.3.1.

A full description of the site location and surrounding land use is presented in Chapter 2 of this EIAR.

7.3.2.2 Historical Land Use

Historical mapping and aerial photography available from the Ordnance Survey of Ireland website (OSI, 2025) and Google Earth (Google Earth, 2025) were reviewed and key observations onsite and offsite are summarised in

Table 7.4.

Table 7.4: Historical Land Use

Date	Information Source	Site Description
1837-1842	OSI map 6inch	**Onsite:** The Proposed Development site is shown as open fields separated by field boundaries and a line of hedgerows. There are two (2 No.) structures identified in the western part of the Proposed Development site. **Offsite:** The surrounding lands are predominantly open fields divided by field boundaries. There are scattered houses in the vicinity of the site. The canal and the Great Southern Railways are located adjacent to the northern boundary of the site. There are two (2 No.) historic quarries adjacent to the northern boundary of the canal and the Great Southern Railways. There is a road running along the western part of the Proposed Development site. The Clonsilla school is located north of the site and south of the Great Southern Railways. The Porterstown House is located west of the Proposed Development site.
1888-1913	OSI map 25inch	**Onsite:** No significant changes. **Offsite:** No significant changes.
1995	OSI Aerial photography	**Onsite:** The two (2 No.) structures previously identified in the western part of the Proposed Development site have been developed further. No other significant changes are noted onsite. **Offsite:** The lands to the north and further east have been significantly developed. However, the lands adjoining the south, west and adjacent to the east boundary of the Proposed Development site remain undeveloped.
1996-2000	OSI Aerial photography	**Onsite:** The are earth movements visible onsite and there is a footprint of a new structure/building to the north of the already existing structures. **Offsite:** The lands to the south, west and east boundary have been significantly developed. However, the lands adjacent to the east boundary of the Proposed Development site remain undeveloped, although earthworks are visible on those fields
2001-2005	OSI Aerial photography	**Onsite:** There is another footprint of a new structure/building to the south of the already existing structures. **Offsite:** The developed areas with high residential dwellings have significantly increased. In addition, the lands adjacent to the east boundary of the Proposed Development have been developed.

Date	Information Source	Site Description
2006-2012	OSI Aerial Photography	**Onsite**: No significant changes. **Offsite:** No significant changes.
2013-2018	OSI Aerial Photography	**Onsite**: The football pitch has been completely established. There is a car park to the north of the site. There are some buildings/sheds in the western part of the Proposed Development site within the footprint identified in the OSI map 6inch. **Offsite:** The Community National School and the Luttrellstown Community College have been developed south of the site.
2025	Google Maps Photography	**Onsite**: No significant changes. **Offsite:** Development started during 2024 in the fields adjacent to the west boundary of the site.

7.3.2.3 Topography

As documented in the Engineering Assessment Report (WM, 2025c; submitted with the planning application under separate cover), the topographic survey data indicates that the site generally falls from north to south, with a high point of approximately 63.02mOD Malin at the northwest corner of the site and a low point of approximately 60.84mOD Malin at the southwest of the site.

7.3.2.4 Soils

The soils beneath the majority of the site are mapped by Teagasc (Teagasc, 2025) as mineral poorly drained (mainly basic), which are classified as Surface water Gleys, Ground water Gleys (IFS Soil Code: BminPD) derived from mainly calcareous parent materials described as till derived chiefly from limestone (TLs).

The soils beneath a small area in the northern and southern portions of the site are mapped as deep well drained mineral (mainly basic), which are classified as Grey Brown Podzolics, Brown Earths (medium-high base status) (IFS Soil Code: BminDW) derived from mainly calcareous parent materials described as till derived chiefly from limestone (TLs).

The most northern portion of the site and a small area to the west of the site are mapped as shallow well drained mineral (mainly basic), which are classified as Renzinas and Lithosols (IFS Soil Code: BminSW) derived from mainly calcareous parent materials described as Bedrock at surface-Calcareous (RckCa).

The soils beneath the site are presented in Figure 7.4 in Section 7.3.1.4.

7.3.2.5 Quaternary Deposits

The subsoil or quaternary deposits beneath the site are mapped by the GSI (GSI, 2025) as till derived from limestones (TLs).

The quaternary sediments beneath the site are presented in Figure 7.5 in Section 7.3.1.5.

7.3.2.6 Quaternary Geomorphology

Two (2 No.) deglacial hummocky sand and gravel have been identified approximately 1.62km north and 1.59km northeast of the site, respectively (GSI, 2025). A striae has been identified approximately 0.65km east of the site. There is a subglacial landform (Crag-and-Tail) approximately 0.63km south of the site. There are also undifferentiated meltwater channels approximately 0.73km and 1.1km southwest of the site. The meltwater channels are orientated in a northeast-to-southwest direction and northwest-to-south direction, respectively (GSI, 2025).

7.3.2.7 Bedrock Geology

The bedrock beneath the majority of the site is mapped by the GSI (GSI, 2025) as the Lucan Formation (code: CDLUCN) described as dark limestone & shale (`calp). The bedrock beneath the most southwestern corner of the site is classified as the Tober Colleen Formation (code: CDTOBE) which is described as calcareous shale, limestone conglomerate.

While there is no bedrock outcrops mapped within the site boundary, there are a number of bedrock outcrops mapped by the GSI (GSI, 2024) within a 2km radius of the site. The closest are located immediately north of the site along the railway tracks adjacent to the northern boundary of the site.

The bedrock geology beneath the site is presented in Figure 7.6 in Section 7.3.1.7.

7.3.2.8 Site Investigations

The soils and geology encountered during the site investigation on lands adjoining the southern eastern boundaries of the site at the Kellystown Strategic Housing Development (currently under construction by the Applicant under ABP-312318-21, , as amended by LRD0034/S3) (SIL, 2019 included in Appendix 7.2) are summarised as follows:

- Made Ground was encountered in four (4No.) trial pits to the southeast of the site.
    - TP02 terminated on pea gravel at 2.10mbGL, potentially due to a deep underground service infrastructure in the soils.
    - TP03 and TP04 also recorded fill material to 0.95mbGL and 0.60mbGL respectively and to 0.20mgGL at TP05.
    - Made ground comprised gravelly cobble and boulders overlying cohesive clay soils.
- The Natural Ground encountered was described as brown, grey overlying black, slightly sandy, slightly gravelly, silty CLAY (cohesive soils).
- The geotechnical laboratory tests of the cohesive soils confirm that low plasticity CLAY soils dominated the site.

Groundwater ingresses were recorded in two of the boreholes, BH01 and BH02, at 1.80mbgl and 1.40mbGL respectively. Both holes recorded that the ingresses were sealed off by the casings at 1.90mbGL and 1.60mbGL and suggests that these are small granular lenses with groundwater in the voids. Groundwater was also recorded in eleven of the thirty-nine trial pits during the fieldworks period and ranged in depth from 1.30mbGL to 2.40mbGL, with ingress rates of seepages to rapid ingresses recorded (SIL, 2019).

Soil Analytical Results

As documented in the site investigation report (SIL, 2019) , a total of three (3No.) soil samples collected were analysed for a suite of parameters suitable to determine the suitability of soils for disposal to a landfill. The soil analytical data for soil samples collected on lands adjoining the southern eastern boundaries of the site at the Kellystown Strategic Housing Development (currently under construction by the Applicant under ABP-312318-21, , as amended by LRD0034/S3) are provided in the site investigation report (SIL, 2019) available in Appendix 7.2.

Based on the soil and soil leachate analysis results, all twenty-one (21No.) samples were classified as non-hazardous using HazWasteOnline™ software and meet the meet the waste acceptance criteria (WAC) for non-hazardous landfills as stipulated in the European Landfill Directive. (Council Directive 1999/31/EC of 26 April 1999). Furthermore, the leachate suite results indicated that the soils tested would generally meet the waste acceptance criteria (WAC) for inert landfill.

Based on a review of the results, there is little evidence of significant anthropogenic contamination in sampled soils:

- The reported concentration of benzene, toluene, ethylbenzene, m/p-xylene and o-xylene (BTEX), were less than the laboratory Limit of Detection (LOD).
- Low levels of Polycyclic Aromatic Hydrocarbons (PAHs) were reported at two (2No.) sample locations (TP03 (at 0.5mbGL) and TP05 (at 0.5mbGL)) with concentrations ranging from 8.8mg/kg to 0.339mg/kg. The reported concentrations of PAHs at the remaining sample location was below the laboratory LOD.
- The reported concentration of Polychlorinated Biphenyl (PCBs) were reported below the laboratory LOD at all sample locations.
- Low levels of mineral oil were reported at one (1No.) sample location with a concentration of 35.5mg/kg. The reported concentrations of mineral oil at remaining sample locations were below the laboratory LOD.
- Low levels of Total Petroleum Hydrocarbons (TPH) were reported at one (1No.) sample locations with a concentration of 397mg/kg. The reported concentrations of TPH at remaining sample locations were reported below the laboratory LOD.

It is noted that samples were not screened for the presence of asbestos

7.3.2.9 Geochemical Domain

The GSI (GSI, 2025) defined Geochemical Domains map indicates that the site of the Proposed Development is located within Domain 2 which is characterised as 'Carboniferous limestones, shales and related rocks'.

A summary of the metals values for Domain 2 are presented below in Table 7.5.

Table 7.5: Geochemically Appropriate Levels for Domain 2

Element	Units	Value
Arsenic	mg/kg	24.90
Cadmium	mg/kg	3.28
Chromium	mg/kg	50.30
Copper	mg/kg	63.50
Mercury	mg/kg	0.36
Nickel	mg/kg	61.90
Lead	mg/kg	86.10
Zinc	mg/kg	197.00

7.3.2.10 Radon

The majority of the site is mapped by the EPA (EPA, 2025) as being in an area where 'about 1 in 10 homes in this area is likely to have high radon levels' or medium radon area. A small part of the site along the northern boundary has been classified as being in an area where 'about 1 in 5 homes in this area is likely to have high radon levels' or high radon area.

The EPA cite the national reference level for radon as 200 Bq/m3 and a High Radon Area where more than 10% of homes may have more than the reference level of radioactivity. As more than 10% of the houses in the area are mapped by the EPA as being over this reference level it indicates that the site is considered a High Radon Area (EPA, 2025). It is noted that a high radon level can be found in any home, in any part of the country, but these homes are more likely to be located in High Radon Areas.

7.3.2.11 Geohazards

The GSI (GSI, 2025) records for karst features indicate that there are no karst features within the 2km radius of the Proposed Development site. The closest karst feature (spring - St. Columbs Well) to the site is located approximately 4.96km southwest of the site.

The site of the Proposed Development and surrounding lands are located within an area with a 'low' landslide susceptibility and along the northern boundary of the site, the area is classified a 'low (inferred)' (GSI, 2025). There are no landslides recorded on the GSI database at the site (GSI, 2025). The closest recorded event, which was associated with a translational slide (debris) named 'Diswellstown 1990' is approximately 2.27km southeast of the site.

In Ireland, seismic activity is recorded by the Irish National Seismic Network operated by Dublin Institute for Advanced Studies (DIAS) which has been recording seismic events in Ireland since 1978. There are six permanent broadband seismic recording stations in Ireland operated by DIAS. Records since 2010 show that the majority of recorded seismic events were associated with quarry blasts and no recent events have been recorded within 2km of the site or the Greater Dublin Area.

7.3.2.12 Geological Heritage Sites

There are no geological heritage sites mapped by the GSI (GSI, 2025) at the site or within the 2km radius of the site. The closest identified geological heritage site is described as the Liffey Valley Centre Road Sections (Site Code: SD007) located approximately 2.22km south of the site (refer to Figure 7.7 in Section 7.3.1.12).

There are also six (6 No.) historic pits and quarry locations mapped within the 2km radius of the site.

7.3.2.13 Economic Geology

The lands beneath the site are mapped by the GSI (GSI, 2025) as having no mapped granular aggregate potential (refer to Figure 7.6 in Section 0).

The bedrock beneath the majority of the site has been identified by the GSI (GSI, 2025) as having a 'high potential' for crushed rock aggregate. Whereas a small portion within the western boundary and along the northern boundary of the site is classified as having 'very high potential'.

7.3.2.14 Importance of Baseline Environment

The site of the Proposed Development is primarily for community use (i.e., football pitch and associated infrastructure). The subsoils are mapped by the GSI (GSI, 2025) as having no granular aggregate potential. The bedrock is classified as having high aggregate extractive potential in the majority of the site with the exception of a small area within the western boundary and along the northern boundary of the site is classified as having 'very high potential'.

Taking into account the attributes of the soil and geology underlying the site, the absence of geological heritage sites, quarries and pits within the site, and in accordance with the TII Guidance as documented by the NRA (NRA, 2009) and as outlined in Table 7.1, the soil underlying the site of the Proposed Development would be rated as having an overall 'low' to 'medium' geological importance.

7.4 Characteristics of the Proposed Development

7.4.1 Proposed Development– Plot 1 (Luttrellstown Gate Phase 2)

Castlethorn Developments Luttrellstown Limited intends to apply for Permission for a development at a site (c. 3.72ha) at lands in the Townland of Kellystown.

The proposed development comprises 99no. residential units in a mix of houses and duplex units consisting of 71no. 2 storey houses (66no. 3-bedroom and 5no. 4-bedroom), 16no. 3 storey houses (16no. 4-bedroom), 4no. 1-bedroom duplex units and 8no. 2-bedroom duplex units and all associated

and ancillary site development and infrastructural works, hard and soft landscaping and boundary treatment works, including public open space; public lighting; surface car parking spaces; bicycle parking spaces/stores for mid-terrace units; bin stores. The proposed development includes a minor amendment to development permitted under Reg. Ref. ABP-312318-21, as amended by Reg. Ref. LRD0034-S3, with minor adjustment proposed to the permitted surface water attenuation pond. Vehicular access to the proposed development is provided by the road network permitted under Reg. Ref. ABP-312318-21, as amended by Reg. Ref. LRD0034-S3.

A full description of the Proposed Development is outlined in Chapter 2 of this EIAR.

The following components are of particular relevance with respect to land soil and geology during the construction stage and operational stage of the Proposed Development.

7.4.1.1 Construction Stage

- Excavation of soil and subsoil for the construction of building foundations, drainage and other infrastructure.
- It is anticipated that there will be no requirement for the excavation of bedrock during the construction stage of the Proposed Development.
- Where possible, it is intended to reuse all suitable excavated topsoil and subsoil to achieve formation levels and for landscaping and engineering use. However, it is anticipated that up to 5000m3 of surplus excavated soil and subsoil will require removal offsite in accordance with all statutory legislation.
- Temporary stockpiling of excavated material pending re-use onsite.
- The importation of aggregate fill materials for the construction of the Proposed Development (e.g., granular material beneath road pavement, under floor slabs and for drainage and utility bedding / surrounds etc.).

7.4.1.2 Operational Stage

The operational stage of the Proposed Development consists of the typical activities in a residential development and with the exception of localised gardening works by the appointed management company, there will be no bulk excavation of soils or bedrock or infilling of waste.

The land use at the site will change from undeveloped grasslands to residential land use with associated vehicular and pedestrian access, car parking and landscaping.

There will be no requirement for bulk storage of petroleum hydrocarbon-based fuels during the operational stage of the Proposed Development, as the main operating system for heating will be air source heat pumps.

Further details are provided in Chapter 15 of this EIAR.

7.4.2 Proposed Development- Plot 2 (LRD Scheme).

Castlethorn Developments Luttrellstown Limited intends to apply for Permission for a development at a site (c. 4.38ha) at lands in the Townland of Porterstown.

The proposed development comprises 302no. residential units in a mix of houses, duplex and apartment units consisting of 62no. 2 storey, 3-bedroom houses and 35no. 3 storey, 4-bedroom houses; 205no. Duplex / Apartment Units (98no. 1-bed, 88no. 2-bed and 19no. 3-bed) across 4no. blocks comprising: Block D ranging in height from 5-7 storeys accommodating 57no. apartment units; Block E ranging in height from 5-7 storeys accommodating 77no. apartment units; Block F ranging in height from 4-5 storeys accommodating 39no. apartment and duplex units; Duplex Blocks G1, G2, G3 & G4 3 storeys in height accommodating 32no. apartment units; and all associated and ancillary site development and infrastructural works, hard and soft landscaping and boundary treatment works,

including public open space; public lighting; surface car parking spaces; bicycle parking spaces/stores for mid-terrace units; bin stores. Vehicular access to the proposed development is provided by the road network permitted under Reg. Ref. ABP-312318-21, as amended by Reg. Ref. LRD0034-S3.

A full description of the Proposed Development is outlined in Chapter 2 of this EIAR.

The following components are of particular relevance with respect to land, soil and geology during the construction stage and operational stage of the Proposed Development.

7.4.2.1 Construction Stage

- Excavation of soil and subsoil for the construction of building foundations, drainage and other infrastructure.
- It is anticipated that there will be no requirement for the excavation of bedrock during the construction stage of the Proposed Development.
- Where possible, it is intended to reuse all suitable excavated topsoil and subsoil to achieve formation levels and for landscaping and engineering use. However, it is anticipated that up to 5000m^3 of surplus excavated soil and subsoil will require removal offsite in accordance with all statutory legislation.
- Temporary stockpiling of excavated material pending re-use onsite.
- The importation of aggregate fill materials for the construction of the Proposed Development (e.g., granular material beneath road pavement, under floor slabs and for drainage and utility bedding / surrounds etc.).

7.4.2.2 Operational Stage

The operational stage of the Proposed Development consists of the typical activities in a residential development and with the exception of localised gardening works by the appointed management company, there will be no bulk excavation of soils or bedrock or infilling of waste.

The land use at the site will change from amenity / community lands (i.e., football pitch) to residential land use with associated vehicular and pedestrian access, car parking and landscaping.

There will be no requirement for bulk storage of petroleum hydrocarbon-based fuels during the operational stage of the Proposed Development, as the main operating system for heating will be air source heat pumps.

Further details are provided in Chapter 15 of this EIAR.

7.5 Potential Impact of the Proposed Development

The procedure for determination of potential impacts on the receiving land, soils and geology is to identify potential receptors within the Proposed Development site boundary and surrounding environment and use the information gathered during the desk study and site walkover to assess the degree to which these receptors will be impacted upon in the absence of mitigation. Impacts are described in terms of quality, significance, duration and type as detailed in Table 7.2.

7.5.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

7.5.1.1 Construction Stage

Land Take and Land Use

The Proposed Development will require a land take of approximately 3.72ha and will change from open grasslands to residential land use. As set out in the Fingal County Development Plan 2023-2029 the lands across the site are zoned as 'RA - Residential Area'. Therefore, the change in land use is in

accordance with the zoning objectives as set out in the Fingal County Development Plan 2023-2029 (FCC, 2023). There will be an unavoidable land take with loss of undeveloped land and soil with a 'negative', 'moderate to significant' and 'permanent' impact taking account of the surrounding land and zoning objectives.

Excavation and Removal of Soil and Subsoil

There will be an unavoidable loss of in-situ soil and subsoil from the site during excavations to achieve the required formation levels for the Proposed Development including building foundations, roads, drainage and other infrastructure.

It is intended to reuse suitable excavated soil and subsoil for landscaping and engineering use. However, it is anticipated that there will be surplus and unsuitable material to be removed offsite. The soils underlying the site are considered to have a 'low' to 'medium' geological importance. Accordingly, there will be an unavoidable 'negative' 'slight' to 'moderate' and 'permanent' impact on the underlying soils at the site.

It is noted that, where required, the removal of unsuitable soil and subsoil offsite will be undertaken in accordance with applicable statutory requirements. This may include where suitable, removal as by-products that meet the legislative requirements of Article 27 of the European Communities (Waste Directive) Regulations, 2011 (as amended). The potential impact with removal offsite of surplus soil and other material as wastes is assessed in Chapter 15 of this EIAR.

Soil Quality and Contamination

The site currently comprises undeveloped open grasslands.

There will be a requirement for the excavation and removal of soils and subsoils impacted with low levels of anthropogenic contamination (i.e., PAHs and petroleum hydrocarbons – refer to Section 7.3.1.8 and 7.3.2.8) and permanent removal off-site that will result in a 'positive', 'slight to moderate' and 'permanent' impact on the quality of shallow soils underlying the site.

The excavation and re-use of soil onsite will be subject to control procedures which will include testing for contaminants, invasive species and other anthropogenic inclusions to ensure suitability for use and assessment of the suitability for use in accordance with engineering and environmental specifications for the Proposed Development. Therefore, the reuse of soils onsite will result in a 'neutral', 'imperceptible' and 'permanent' impact on the quality of shallow soils underlying the site.

There is a potential risk associated with the use of cementitious materials during construction of subsurface structures (such as foundations) on the underlying soil and geology at the Proposed Development. It is considered that this may result in a 'negative', 'moderate' and 'long-term' impact on existing quality of soil within a localised area underlying the site.

The potential accidental release of deleterious materials including fuels and other materials being used onsite, through the failure of secondary containment or a materials' handling accident on the Proposed Development could potentially result in a 'negative', 'moderate to significant', 'long-term' impact on the receiving soil and geology depending on the nature of the incident. This worst-case scenario is deemed to be unlikely to occur.

Dust Generation

There is a potential for creation of windblown dust generation from the temporary stockpiling of materials onsite. There will be some exhaust emissions generated from the use of excavators, HGVs (heavy goods vehicles) and vibrating rollers during the construction stage of the Proposed Development. An assessment of the potential impact of the Proposed Development with regard to the generation of dust is addressed in Chapter 9 of this EIAR.

Soil Structure

The excavation and re-use of soil at the site (where possible) will result in the exposure of the materials to various elements including weather, construction traffic and temporary stockpiling. This exposure can lead to changes in the soil's moisture content, temperature, and structure (e.g., rain can cause the soil to become waterlogged, dry weather can lead to desiccation and cracking, movement of construction vehicles and equipment over the soil can cause compaction and disturbance reducing the soil's porosity, making it less able to absorb water and nutrients). Over time, the soil may become less cohesive and more prone to erosion and instability. The combined effects of exposure to elements, construction traffic, and temporary stockpiling will have a potential 'negative,' slight' and 'long term' impact on the natural strength of the materials.

Importation of Fill Material

The importation of aggregate fill materials will be required for the construction of the proposed development (e.g., construction of the piling mat and granular material beneath road pavement, under floor slabs and for drainage and utility bedding / surrounds). The potential impacts may include loss of attribute and changes in the geological regime at the source site. It is anticipated that the required aggregates identified for importation onsite will be 'indirect' and have a 'neutral,' 'imperceptible' and 'permanent' impact on the source site taking account of the fact that the statutory consent process would have required the necessary environmental impacts to be assessed and mitigated as appropriate at the source site.

Geological Hazards

Earthquakes are not likely to occur in the vicinity of the site at a sufficient intensity to pose a risk for the Proposed Development. The GSI database indicates that the site is located within an area of low susceptibility to landslides. Furthermore, there are no potential ground stability hazards identified for the site.

The site is not located within an area associated with karst geology due to the nature of the underlying granite bedrock and therefore there are no identified risks associated with karst features.

All aggregates imported to the site for use in the Proposed Development will be subject to strict quality control procedures in accordance with the design specification and relevant Building Regulations therefore avoiding any potential issues with pyrite in aggregates.

The site is identified as being located within a 'Medium' to 'High' Radon Area. The design and specification for all buildings will be in accordance with current Building Regulations and therefore any potential issues associated with radon will be addressed and avoided.

7.5.1.2 Operational Stage

During the operational phase of the Proposed Development there is no likely potential for any direct adverse impact on the receiving land, soil and geological environment at the site taking account of the design for the Proposed Development.

The design and construction of the Proposed Development will be in accordance with current Building Regulations will ensure that the site will be suitable for use for the operational stage as a residential development taking account of the geological site setting.

7.5.1.3 Do-Nothing Impact

The 'Do Nothing' scenario assesses the potential impact on the receiving land, soils, and geological environment if the Proposed Development did not proceed.

It is considered that there would be no change or resulting impact on the nature of the site with respect to land, soil and geology at the site which would remain as undeveloped grasslands.

As set out in the Fingal County Development Plan 2023-2029 the lands across the site are zoned as 'RA - Residential Area'. The zoning objective allows for the development of new residential communities subject to the provision of the necessary social and physical infrastructure. As such, it is reasonable to assume another similar development proposed for the lands could be brought forward for the site. This would require a separate assessment or EIAR applicable to the relevant scheme design.

7.5.2 Proposed Development- Plot 2 (LRD Scheme)

7.5.2.1 Construction Stage

The Proposed Development will require a land take of approximately 4.38ha and will change from amenity /community use to residential land use. As with the Plot 1 (Luttrellstown Gate Phase 2) development, the lands across the site are zoned as 'RA - Residential Area' and therefore the Proposed Development (i.e., the Plot 2 (LRD Scheme)) will also have an unavoidable 'negative', 'moderate to significant' and 'permanent' impact associated with land take and loss of land and soil at the site.

As with the Plot 1 (Luttrellstown Gate Phase 2) development, the soils underlying the site are considered to have a 'low' to 'medium' geological importance. Therefore, the excavation and removal of surplus soil and subsoil during groundworks for the Proposed Development (i.e., the - Plot 2 (LRD Scheme)) will also have an unavoidable 'negative', 'slight' to 'moderate' and 'permanent' impact on the underlying soils at the site.

All remaining potential impacts during the construction stage of the Proposed Development (i.e., the Plot 2 (LRD Scheme)) are the same as the potential impacts stated above in Section 7.5.1.1 for the construction stage of the Plot 1 (Luttrellstown Gate Phase 2) development.

7.5.2.2 Operational Stage

As with the operational stage of the Plot 1 (Luttrellstown Gate Phase 2) development, the operational stage of the Proposed Development (i.e., the Plot 2 (LRD Scheme)) will have no likely potential for any direct adverse impact on the receiving land, soil and geological environment at the site taking account of the design for the Proposed Development.

The design and construction of the Proposed Development will be in accordance with current Building Regulations will ensure that the site will be suitable for use for the operational stage as a residential development taking account of the geological site setting.

7.5.2.3 Do-Nothing Impact

If the Proposed Development did not proceed the site would remain as amenity/community use lands.

As set out in the Fingal County Development Plan 2023-2029 the lands across the site are zoned as 'RA - Residential Area'. The zoning objective allows for the development of new residential communities subject to the provision of the necessary social and physical infrastructure. As such, it is reasonable to assume another similar development proposed for the lands could be brought forward for the site. This would require a separate assessment or EIAR applicable to the relevant scheme design.

7.5.3 Cumulative

Cumulative Impacts can be defined as "impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project". Effects which are caused by the interaction of effects, or by associated or off-site projects, are classed as indirect effects.

Cumulative effects are often indirect, arising from the accumulation of different effects that are individually minor. Such effects are not caused or controlled by the project developer.

As part of this assessment, other offsite developments and proposed offsite developments as detailed in Chapter 2 of this EIAR and summarised below were reviewed and considered for possible cumulative effects with the Proposed Development.

- The Kellystown area has been subject to several recent planning permissions, which collectively contribute to significant cumulative development impacts. The consented Kellystown SHD scheme (ABP-312318-21) was granted on the 2nd of March 2023 and includes 346 dwellings, a childcare facility, and a retail unit, along with associated site works and a public park. Amendments to this scheme were approved on the 21st of August 2024, increasing the number of dwellings and reconfiguring internal floor plans and amenities. Additionally, a live planning application (FW25A/0033E) seeks to relocate St. Mochta's Football Club grounds to new lands within the Kellystown area.
- In the wider surrounding area, other significant developments include the construction of 170 residential units, a café, and a childcare facility (ABP Reg. Ref. 320886-24) granted on the 21st of January 2025, and a mixed-use retail and residential development (ABP Reg. Ref. 315707-23) granted on the 19th of December 2023.

7.5.3.1 Proposed Development– Plot 1 (Luttrellstown Gate Phase 2)

Construction Stage

Excavation and Removal of Soil and Subsoil

Excavated soil and subsoil during the construction stage of the Proposed Development could potentially be directed to the same receiving waste facilities for recovery / disposal as excavated materials from the Plot 2 (LRD Scheme) development and other developments detailed in Chapter 2 of this EIAR and within the Greater Dublin Area. All surplus soils and subsoils from the site will be removed offsite in accordance with all statutory legislation. Accordingly, it is considered that any cumulative impact on lands, soils and geology associated with the Proposed Development will be 'neutral', 'imperceptible' and 'permanent'.

Import of Aggregates and Materials

The importation of aggregates to the Proposed Development may be sourced from the same borrow site as the Plot 2 (LRD Scheme) development and other permitted developments detailed in Chapter 2 of this EIAR and within the Greater Dublin Area. However, contract and procurement procedures will ensure that all aggregates and fill material originating from quarry sources that will be required for construction are sourced from reputable authorised suppliers operating in a sustainable manner and in accordance with the necessary statutory consents. Therefore, regardless of the number of other projects and developments using aggregates from the same source sites, there will be an 'indirect', 'neutral', 'imperceptible' and 'permanent' impact on the geological environmental at the source site.

There are no other cumulative impacts associated with land, soil and geology associated with the construction stage of the Proposed Development.

Operational Stage

There will be no cumulative effects on land, soil and geology during the operational stage of the Proposed Development.

7.5.3.2 Proposed Development- Plot 2 (LRD Scheme)

Construction Stage

Potential cumulative impacts on receiving waste facilities and borrow sites during the construction stage of the Proposed Development (i.e., the Plot 2 (LRD Scheme)) are the same as the potential impacts stated above in Section 7.5.3.1 for the Plot 2 (LRD Scheme)

Operational Stage

As with the Plot 1 (Luttrellstown Gate Phase 2) development, there will be no cumulative effects on land, soil and geology during the operational stage of the Proposed Development (i.e., the Plot 2 (LRD Scheme)).

7.6 Mitigation Measures (Ameliorative, Remedial or Reductive Measures)

The mitigation measures as outlined below, will ensure that there will be no significant impact on the receiving land, soil and geology.

7.6.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

7.6.1.1 Construction Stage

During the construction stage, all works will be undertaken in accordance with the Construction Environmental Management Plan (CEMP) (Enviroguide Consulting, 2025a) and Resource and Waste Management Plan (RWMP) (Enviroguide Consulting, 2025b) submitted with the planning application under separate cover. Following appointment, the contractor will be required to further develop the CEMP and RWMP to provide detailed construction phasing and methods to manage and prevent any potential emissions to ground with regard to the relevant industry standards (e.g., Guidance for Consultants and Contractors, CIRIA-C532', CIRIA, 2001). The CEMP and RWMP will be implemented for the duration of the construction stage, covering construction and waste management activities that will take place during the construction stage of the Proposed Development. Mitigation works will be adopted as part of the construction works for the Proposed Development.

Import of Aggregates and Materials

Contract and procurement procedures will ensure that all imported aggregates and materials required for the construction of the Proposed Development will be sourced from reputable suppliers operating in a sustainable manner and in accordance with industry conformity/compliance standards and statutory obligations. The importation of aggregates and materials will be subject to management and control procedures which will include testing for contaminants, invasive species and other anthropogenic inclusions and assessment of the suitability for use in accordance with engineering and environmental specifications for the Proposed Development. Therefore, any unsuitable material will be identified prior to unloading / placement onsite.

Airborne Dust Generation

Excavated soils will be carefully managed and maintained in order to minimise potential impact on soil quality and soil structure. Handling of soils will be undertaken in accordance with documented procures outlined in the CEMP (Enviroguide Consulting, 2025a) that will be set out in order to protect ground and minimise airborne dust. The normal measures required to prevent airborne dust emissions and associated nuisance arising from site work will be in place including measures to prevent uncovered soil drying out leading to wind pick up of dust and mud being spread onto the local road network and adjoining properties. This may require additional wetting at the point of dust release, dampening down during dry weather and wheel cleaning for any vehicles leaving the site. Potential impacts and avoidance and mitigation measures associated with generation of dust are addressed in Chapter 9 of this EIAR.

Reuse of Soil

Soil and subsoil materials to be reused within the Proposed Development (i.e., for engineering fill and landscaping) will be subject assessment of the suitability for use in accordance with engineering and environmental specification for the Proposed Development. This will include:

- Define the criteria by which the suitability of the soils for reuse will be assessed (e.g., analytical parameters and limits), the engineering requirements such as geotechnical parameters for the material to be used within the works.
- Delineation of areas where excavated soil is intended for disposal off-site as waste, and where it is intended for reuse on site.
- Identification and recording of the location from where the soil will be excavated and its proposed reuse location and function.
- Engineering assessment to confirm its suitability for reuse.
- Any proposed treatment or processing required to enable its reuse, as well as any associated treatment permits, or licences required.

Management and Control of Soils and Stockpiles

Segregation and storage of soils for re-use onsite or removal offsite and waste for disposal offsite will be segregated and temporary stored onsite pending removal or reuse onsite in accordance with the measures outlined in the CEMP (Enviroguide Consulting, 2025a).

Specific routes for construction vehicles will be identified in advance of construction works commencing to minimise soil compaction and disturbance.

Where possible, stockpiling of soils and subsoils onsite will be avoided. However, in the event that stockpiling is required, stockpiled materials, pending reuse onsite, will be located away from the location of any sensitive receptors (watercourses and drains).

As mentioned above, the re-use of suitable cut material onsite for the Proposed Development (i.e., landscaping, raising levels or engineering fill) will be undertaken in accordance with the engineered design of the Proposed Development. Where required, organic matter or soil conditioners to improve soil structure and fertility before re-use.

Surplus material, not suitable for reuse onsite, will be segregated, and stockpiled appropriately for removal offsite. For any excavated material identified for removal offsite, while assessment and approval of acceptance at a destination re-use, recovery site or waste facility is pending, excavated soil for recovery/disposal shall be stockpiled as follows:

- A suitable temporary storage area will be identified and designated.
- In order to minimise potential impact on soil quality, the handling of the stockpiled soil and stone will be minimised and will not be disturbed once formed.
- Stockpiles will not be positioned adjacent to ditches, watercourses or existing or future excavations. Stockpiles will be a minimum of 30m from existing drains and ditches.
- Material identified for reuse on site, off site and waste materials will be individually segregated and all segregation, storage and stockpiling locations will be clearly delineated on the site drawings.
- Soil stockpiles will be covered to prevent run-off from the stockpiled material, the generation of dust and/or minimise infiltration or accumulations of rainwater.
- Material identified for reuse on site, off site and waste materials will be individually segregated. When a stockpile has been sampled for classification purposes, it shall be considered to be complete, and no more soil shall be added to that stockpile prior to disposal.
- Any waste that will be temporarily stored / stockpiled will be stored on impermeable surface high-grade polythene sheeting, hardstand areas or skips to prevent cross-contamination of the soil below or cross contamination with soil.

- Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust.

An excavation/ stockpile register will be maintained on site showing at least the following information:

- Stockpile number.
- Origin (i.e., location and depth of excavation).
- Approximate volume of stockpile.
- Date of creation.
- Description and Classification of material.
- Date sampled.
- Date removed from site.
- Disposal/recovery destination.
- Photograph

Export of Resource (Soil and Subsoil) and Waste

Any waste generated from construction activities, including concrete, asphalt and soil stockpiles, will be managed in accordance with the procedures outlined in the CEMP (Enviroguide Consulting, 2025a) and RWMP (Enviroguide Consulting, 2025b) and will be stored onsite in such a manner as to:

- Prevent environmental pollution (bunded and/or covered storage, minimise noise generation and implement dust/odour control measures, as may be required).
- Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling and recovery.
- Prevent hazards to site workers and the general public during Construction stage (largely noise, vibration and dust).

All surplus materials and any waste will be removed offsite in accordance with the requirements outlined in the CEMP (Enviroguide Consulting, 2025a) and RWMP (Enviroguide Consulting, 2025b) and will be managed in accordance with all legal obligations. It will be the contractor's responsibility to either; obtain a waste collection permit or, to engage specialist waste service contractors who will possess the requisite authorisations, for the collection and movement of waste offsite.

As documented in the RWMP (Enviroguide Consulting, 2025b), where appropriate, excavated soil and material intended for recovery or disposal offsite will require appropriate waste classification in order to select an appropriate receiving facility. Assessment of the excavated material will be carried out with due regard to the following guidance and legislation:

- Environmental Protection Agency document entitled Waste Classification; List of waste and determining if waste is Hazardous or Non-Hazardous.
- EU Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive 1999/31/EC (2002).
- Environmental Protection Agency documented entitled Guidance on Waste Acceptance Criteria at Authorised Soil Recovery Facilities.
- Environment Agency, 2018. Technical Guidance WM3: Guidance on the classification and assessment of waste.
- Any other guidance or legislation that might be applicable or relevant at the time of disposal.

The re-use of soil and subsoil offsite will be undertaken in accordance with all statutory requirements and obligations including where appropriate re-use as by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (SI No. 126 of 2011) as amended.

Any surplus material not suitable for re-use as a by-product and other waste materials arising from the construction stage will be removed offsite by an authorised contractor and sent to the appropriately authorised (licensed/permitted) receiving waste facilities. As only authorised facilities will be used, the potential impacts at any authorised receiving facility sites will have been adequately assessed and mitigated as part of the statutory consent procedures.

Any waste soils will be transported under a valid waste collection permit issued under the Waste Management (Collection Permit) Regulations 2007, as amended and will be delivered to an appropriately authorised waste management facility.

Materials and waste will be documented prior to leaving the site. All information will be entered into a waste management register kept on the site.

Vehicles transporting material with potential for dust emissions to an offsite location shall be enclosed or covered with a tarpaulin at all times to restrict the escape of dust.

Public roads outside the site will be regularly inspected for cleanliness and cleaned as necessary. The main contractor will carry out road sweeping operations, employing a suction sweeper or similar appropriate method, to remove any project related dirt and/or material deposited on the road by construction/ delivery vehicles. All vehicles exiting the site will make use of a wheel wash facility where appropriate, prior to exiting onto public roads.

Concrete Works

Pre-cast concrete will be used where technically feasible to meet the design requirements for the Proposed Development. Where cast-in-place concrete is required, all work will be carried out to avoid any contamination of the receiving geological environment through the use of appropriate design and methods implemented by the appointed Contractor and in accordance with the CEMP (Enviroguide, 2025a) and relevant industry standards.

All ready-mixed concrete will be delivered to the site by truck. The following measures will be implemented where poured concrete is being used on site:

- The production, transport and placement of all cementitious materials will be strictly planned and supervised. Site batching/production of concrete will not be carried out on site.
- Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed.
- Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening.
- Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete.
- Concrete mixer trucks will not be permitted to wash out on-site with the exception of cleaning the chute into a container which will then be emptied into a skip for appropriate compliant removal offsite.
- Surplus concrete will be returned to batch plant after completion of a pour.

Handling of Fuels, Chemicals and Materials

Fuelling and lubrication of equipment will be carried out in accordance with the procedures outlined in the CEMP (Enviroguide, 2025), in a designated area of the site away from any watercourses and drains (where not possible to carry out such activities onsite.

Any diesel, fuel or hydraulic oils stored on-site will be sealed, secured and stored in a dedicated internally bunded chemical storage cabinet unit or inside concrete bunded areas to prevent any seepage to ground. There will be clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.

- Bunds will have regard to Environmental Protection Agency (EPA) guidelines 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2013) and Enterprise Ireland's Best Practice Guide (BPGCS005 Oil Storage Guidelines). All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the greater of the following:
    - 110% of the capacity of the largest tank or drum within the bunded area; or
    - 25% of the total volume of substance that could be stored within the bunded area.
- Vehicle or equipment maintenance work will take place in a designated impermeable area within the site.
- Portable generators or similar fuel containing equipment will also be placed on suitable drip trays or bunds.

Refuelling of plant and vehicles during the construction stage will only be permitted at designated refuelling station locations onsite and will be from a road tanker brought to site as required. Each station will be fully contained and equipped for spill response and a specially trained and dedicated Environmental and Emergency Spill Response team will be appointed by the Contractor before the commencement of works onsite.

A procedure will be drawn up by the contractor which will be adhered to during refuelling of onsite vehicles. This will include the following:

- Fuel will be delivered to plant onsite by dedicated tanker.
- All deliveries to onsite vehicles will be supervised and records will be kept of delivery dates and volumes.
- The driver will be issued with, and will carry at all times, absorbent sheets and granules to collect any spillages that may accidentally occur.
- Where the nozzle of a fuel pump cannot be placed into the tank of a machine then a funnel will be used.
- All re-fuelling will take place in a designated impermeable area. In addition, oil absorbent materials will be kept onsite in close proximity to the re-fuelling area.

Emergency Procedures

Emergency procedures will be developed by the appointed Contractor in advance of works commencing and spillage kits will be available on-site including in vehicles operating on-site. Construction staff will be familiar with emergency procedures in the event of accidental fuel spillages. Remedial action will be immediately implemented to address any potential impacts in accordance with industry standards and legislative requirements.

- Any required emergency vehicle or equipment maintenance work will take place in a designated impermeable area within the Proposed Development site.
- Emergency response procedures will be put in place, in the unlikely event of spillages of fuels or lubricants.
- Spill kits including oil absorbent material will be provided so that any spillage of fuels, lubricants or hydraulic oils will be immediately contained.
- In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the Proposed Development site and compliantly disposed offsite. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures and standards.
- All construction works staff will be familiar with emergency procedures in the event of accidental fuel spillages.
- All construction works staff onsite will be fully trained on the use of equipment.

This procedure will be undertaken in accordance with industry best practice procedures and standards. These measures will ensure that there is minimal risk to the receiving land, soil and geology associated with the construction stage of the Proposed Development.

Welfare Facilities

Welfare facilities have the potential, if not managed appropriately, to release organic and other contaminants to ground or surface water courses. Foul drainage from temporary welfare facilities during the construction stage of the Proposed Development will be discharged to temporary holding tank(s) the contents of which will periodically be tankered offsite to a licensed facility. All waste from welfare facilities will be managed in accordance with the relevant statutory obligations by an appropriately authorised contractor.

Any connection to the public foul drainage network during the construction stage of the Proposed Development will be undertaken in accordance with the necessary temporary discharge licences issued by UE.

7.6.1.2 Operational Stage

During the operational stage of the Proposed Development there is no likely potential for any direct adverse impact on the receiving land, soil and geological environment at the site taking account of the design for the Proposed Development. Therefore, there is no requirement for mitigation measures for the operational stage.

7.6.2 Proposed Development- Plot 2 (LRD Scheme)

7.6.2.1 Construction Stage

Mitigation measures during the construction stage of the Proposed Development (i.e., the - Plot 2 (LRD Scheme) are the same as the mitigation measures stated above in Section 7.6.1.1 for the construction stage of Plot 1 (Luttrellstown Gate Phase 2) development.

7.6.2.2 Operational Stage

Mitigation measures during the Operational stage of the Proposed Development (i.e., the Plot 2 (LRD Scheme) are the same as the mitigation measures stated above Section 7.6.1.2 for the operational stage of Plot 1 (Luttrellstown Gate Phase 2) development.

7.7 Residual Impact of the Proposed Development

Residual Impacts are defined as 'effects that are predicted to remain after all assessments and mitigation measures'. They are the remaining 'environmental costs' of a project and are the final or intended effects of a development after mitigation measures have been applied to avoid or reduce adverse impacts.

7.7.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

7.7.1.1 Construction Stage

Residual Impacts are defined as 'effects that are predicted to remain after all assessment and mitigation measures'. They are the remaining 'environmental costs' of a project and are the final or intended effects of a development after mitigation measures have been applied to avoid or reduce adverse impacts.

The predicted impacts of the construction phase and operational phase of the Proposed Development are described in Table 7 in terms of quality, significance, extent, likelihood, and duration. The relevant

mitigation measures are detailed, and the residual impacts are determined which take account of the avoidance, remedial and mitigation measures.

The excavation of soils impacted with low levels of anthropogenic contamination (i.e., PAH's and petroleum hydrocarbons) and permanent removal off-site will have an overall positive impact on the quality of shallow soils underlying the site.

Overall, there are no significant residual impacts on land, soils and geology anticipated regarding the construction stage of the Proposed Development.

Table 7.6: Summary of Residual Impact During the Construction Stage of the Proposed Development

Construction Stage								
Activity	**Attribute**	**Predicted Impact**	**Quality**	**Significance**	**Duration**	**Type**	**Mitigation**	**Residual Impact**
Construction of the Proposed Development	Land Take and Land Use	The Proposed Development will require land take of approximately 3.72ha and will change from undeveloped open grassland to residential land use.	Negative	Moderate to Significant	Permanent	Direct	Unavoidable and no mitigation. The Proposed Development will develop lands in line with the land zoning as set out in the Fingal County Development Plan 2023-2029.	Moderate to Significant
Excavation of In-situ Soils	Soils	There will be an unavoidable loss of excavated topsoil and subsoil through excavation works to achieve the formation levels for the Proposed Development including building foundations, roadways, parking, drainage infrastructure and landscaping.	Negative	Slight to Moderate	Permanent	Direct	None required. It is intended to reuse suitable excavated subsoil for engineering fill and landscaping. The removal of all surplus soil will be undertaken in accordance with the RWMP and all applicable statutory legislation.	Slight to Moderate
Excavation of Contaminated Soils	Soil Quality	The excavation of soils impacted with low levels of anthropogenic contamination (i.e., PAHs and petroleum hydrocarbons) and permanent removal off-site is a design requirement of the Proposed Development.	Positive	Slight to Moderate	Permanent	Direct	None required.	Positive
Removal of Surplus Soil	Land, Soil and Geology at Receiving Facility	Excavated soil and subsoil during the construction stage of the Proposed Development could potentially be directed to the same receiving waste facilities for recovery / disposal as excavated	Neutral	Imperceptible	Permanent	Cumulative	None required. All surplus soils and subsoils from the Site will be removed offsite in accordance with the RWMPP and all applicable statutory legislation.	Imperceptible

Construction Stage								
Activity	**Attribute**	**Predicted Impact**	**Quality**	**Significance**	**Duration**	**Type**	**Mitigation**	**Residual Impact**
		materials from other developments.						
Use of Cementitious Materials	Soils and Subsoils	Potential release of cementitious material during construction works for foundations, pavements and infrastructure to the land, soil, and geological environment.	Negative	Moderate to Significant	Long Term	Direct	Where cast-in-place concrete is required, all work will be carried out to avoid any contamination of the receiving land, soil and geological environment through the use of appropriate design and methods implemented by the main contractor and in accordance with the CEMP and relevant industry standards	Imperceptible
Accidental Release of Deleterious Materials (e.g., Fuels or Other Hazardous Materials Being Used Onsite).	Soils, Subsoils and Bedrock	Potential (albeit low) for uncontrolled release of deleterious materials including fuels and other materials being used onsite, through the failure of secondary and tertiary containment or a materials handling accident, to the land, soil, and geological environment.	Negative	Moderate to Significant	Long Term	Direct / Worst Case	Refuelling of plant and storage of any deleterious materials including fuels will be undertaken in accordance with the requirements and procedures outlined in the CEMP.	Imperceptible
Stockpiling of Excavated Soil and Subsoils	Soil Structure	The temporary stockpiling of excavated soils will result in exposure of the materials to various elements including weather.	Negative	Slight	Long-term	Direct	The segregation and stockpiling of soil and stone at the Site pending reuse or removal offsite will be carefully managed and maintained in order to minimise potential impact on soil quality.	Imperceptible

Construction Stage								
Activity	**Attribute**	**Predicted Impact**	**Quality**	**Significance**	**Duration**	**Type**	**Mitigation**	**Residual Impact**
Import of Required Aggregates and Materials	Land, Soil and Geology at the Source Site	The Proposed Development will require the importation of aggregates for the construction of roads and utility infrastructure. The potential impacts may include loss of attribute and changes in geological setting at the source site.	Negative	Slight	Permanent	Indirect / Cumulative	Only certified materials from authorised sources will be used.	Imperceptible

7.7.1.2 Operational Stage

During the operational stage of the Proposed Development, there is a limited potential for a significant residual impact on the receiving land, soil and geological environment taking account of the proposed design measures.

7.7.2 Proposed Development- Plot 2 (LRD Scheme)

7.7.2.1 Construction Stage

The Proposed Development will require a land take of approximately 4.38ha and will change from amenity /community use to residential land use. As with the Plot 1 (Luttrellstown Gate Phase 2) development, the lands across the site are zoned as 'RA - Residential Area' and therefore the Proposed Development (i.e., the Plot 2 (LRD Scheme)) will also have an unavoidable 'moderate to significant' residual impact associated with land take and loss of land and soil at the site.

As with the Plot 1 (Luttrellstown Gate Phase 2) development, the soils underlying the site are considered to have a 'low' to 'medium' geological importance. Therefore, the excavation and removal of surplus soil and subsoil during groundworks for the Proposed Development (i.e., the - Plot 2 (LRD Scheme)) will also have an unavoidable 'slight' to 'moderate' residual impact on the underlying soils at the site.

All remaining residual Impacts during the construction stage of the Proposed Development (i.e., Plot 2 (LRD Scheme) are the same as the residual impacts stated above in Table 7 of Section 7.7.1.1 for the construction stage of Plot 1 (Luttrellstown Gate Phase 2) development.

7.7.2.2 Operational Stage

As with the operational stage of the Plot 1 (Luttrellstown Gate Phase 2) development, there is a limited potential for a significant residual impact on the receiving land, soil and geological environment during the operational stage of the Proposed Development (i.e., Plot 2 (LRD Scheme) taking account of the proposed design measures

7.7.3 Cumulative

7.7.3.1 Construction Stage

Excavated soil and subsoil during the construction stage of the Proposed Development will be removed offsite in accordance with all statutory legislation.

Contract and procurement procedures will ensure that the importation of aggregates to the Proposed Development are sourced from reputable authorised suppliers operating in a sustainable manner and in accordance with the necessary statutory consents.

Therefore, there will be no cumulative residual impact during the construction stage of the Proposed Development (i.e., both Plot 1 (Luttrellstown Gate Phase 2) and Plot 2 (LRD Scheme)).

7.7.3.2 Operational Stage

There will be no cumulative effects on land, soil and geology during the operational stage of the Proposed Development (i.e., both Plot 1 (Luttrellstown Gate Phase 2) and Plot 2 (LRD Scheme)).

7.8 Monitoring

7.8.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

7.8.1.1 Construction Stage

During the construction stage of the Proposed Development, the following monitoring measures will be considered:

- Routine monitoring and inspections during refuelling, concrete works to ensure no impacts and compliance with avoidance, remedial and mitigation measures.
- Inspections and monitoring will be undertaken during excavations and other groundworks to ensure that measures that are protective of water quality are fully implemented and effective.
- A dust deposition monitoring programme will be implemented during the construction stage in order to verify the continued compliance with relevant standards and limits.
- Materials management and waste audits will be carried out at regular intervals to monitor the following:
    - Management of soils onsite and for removal offsite.
    - Record keeping.
    - Traceability of all materials, surplus soil and other waste removed from the site.
    - Ensure records are maintained of material acceptance at the end destination.

7.8.1.2 Operational Stage

There are no monitoring requirements specifically in relation to land, soil and geology during the Operational stage of the Proposed Development.

7.8.2 Proposed Development - Plot 2 (LRD Scheme)

7.8.2.1 Construction Stage

The monitoring measures proposed during the construction stage of the Proposed Development (i.e., Plot 2 (LRD Scheme) are the same as the ones stared in Section 7.8.1.1 for Plot 1 (Luttrellstown Gate Phase 2).

7.8.2.2 Operational Stage

The monitoring measures proposed during the operational stage of the Proposed Development (i.e., Plot 2 (LRD Scheme) are the same as the ones stared in Section 7.8.1.2 for Plot 1 (Luttrellstown Gate Phase 2).

7.9 Interactions

7.9.1 Proposed Development - Plot 1 (Luttrellstown Gate Phase 2)

Population and Human Health

An assessment of the potential impact of the Proposed Development on human health is included in Chapter 5 of this EIAR.

There is a potential risk of dust generated from excavation and stockpiling of soil during the Construction Phase of the Proposed Development posing a human health risk in the absence of standard avoidance and mitigation measures which will be implemented to be protective of human health.

Appropriate industry standard and health and safety legislative requirements will be implemented during the Construction Phase of the Proposed Development that will be protective of site workers.

Biodiversity

An assessment of the potential impacts of the proposed development on the biodiversity of the subject site, with emphasis on habitats, flora and fauna which may be impacted as is included in Chapter 6 of this EIAR such as potential pollution (i.e., dust arising from stockpiles) of waterbodies impacting on flora and fauna in the absence of mitigation measures.

Chapter 6 of this EIAR addresses impacts of the proposed development on habitats and species, particularly those protected by national and international legislation or considered to be of particular conservation importance and proposes measures for the mitigation of these impacts.

Water

An assessment of the potential impact of the proposed development on the existing hydrological and hydrogeological environment during the construction phase and operational phase of the proposed development is set out in Chapter 8. In the absence of avoidance and mitigation measures, there is a potential for sediments from excavated soils entering the local drainage network on public roads during the construction stage of the Proposed Development.

Air Quality and Climate

The excavation of soils across the Site and the temporary stockpiling of soils pending reuse or removal offsite has the potential to generate nuisance impacts (i.e., dust) during the construction stage of the Proposed Development. An assessment of the potential impact of the Proposed Development on air quality and climate is included in Chapter 9 of this EIAR

Material Assets: Traffic and Transport / Waste and Utilities

An assessment of the potential impact of the proposed development on the material assets including traffic and transport, and waste and utilities are included in Chapter 14 and Chapter 15 of this EIAR respectively.

Where possible, it is intended to retain and re-use the excavated soil and subsoil on the site for engineering fill and landscaping. However, it is anticipated that surplus material will require removal offsite. Soil not suitable for reuse offsite will be removed by an authorised contractor to a receiving waste facility.

There is also a requirement to import aggregates during the construction stage of the Proposed Development.

7.9.2 Proposed Development - Plot 2 (LRD Scheme)

The interactions during the construction stage and operational stage of the Proposed Development (i.e., Plot 2 (LRD Scheme) are the same as those described in section 7.9.1.

7.10 Difficulties Encountered

No difficulties were encountered in the preparation of this chapter of the EIAR.