# NI 43-101 Technical Report on the Leinster Property, Republic of Ireland

**Prepared for**

**Technology Minerals Limited**

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**United Kingdom**

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**April 30, 2021**

**IMPORTANT NOTICE**

This report was prepared as a National Instrument 43-101 Technical Report, in accordance with Form 43-101, for Technology Minerals, by EurGeol Dr. Sandy M. Archibald, PGeo. The quality of information, conclusions, and estimates contained herein is consistent with: i) information available at the time of preparation, ii) data supplied by outside sources, and iii) the assumptions, conditions, and qualifications set forth in this report. This report is intended for use by Technology Minerals Limited and is approved for filing as a Technical Report with the London Stock Exchange (LSE). The LSE can rely on this report without risk.

**Report Title:** **Technical Report on the Leinster Property, Republic of Ireland**

Issue Date: April 30, 2021

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**Standard Units & Abbreviations**

| | |
|---|---|
| % | Percent |
| < | Less than |
| > | Greater than |
| ° | Degree |
| °C | Degrees Celsius |
| µm | Micrometre (micron) |
| a | Year (annum) |
| Ce | Cesium |
| cm | Centimetre |
| CP | Competent Person |
| g | Gram |
| GPS | Global Positioning System |
| h | Hour |
| in | Inch(es) |
| k | Kilo (thousand) |
| kg | Kilogram |
| km | Kilometre |
| $km^2$ | Square kilometre |
| kt | Thousand tonnes |
| Li | Lithium |
| m | Metre |
| M | Million |
| $m^2$ | Square metre |
| Ma | Million years ago |
| mm | Millimetre |
| NI 43-101 | National Instrument 43-101 |
| P.Geo | Professional Geologist (Canadian/Irish Designation) |
| PLA | Prospecting Licence Area |
| ppm | Parts per million |
| pXRF | Portable X-Ray Fluorescence |
| QP | Qualified Person |
| REE | Rare Earth Elements |
| t | Tonne (metric, 1,000 kg = 2,205 lbs) |
| Ta | Tantalum |
| W | Tungsten |

# 1 SUMMARY

This report was commissioned by Technology Minerals Limited ("Technology") with offices at 18 Saville Row, London, W1S 3PW, United Kingdom, and was prepared by EurGeol Dr. Sandy M. Archibald, P. Geo. The author is a "qualified person" who is "independent" of Technology Minerals within the meaning of National Instrument 43-101 – Standards of Disclosure for Mineral Projects. As an independent geologist the author was asked to undertake a review of the available data and recommend (if warranted) further work on the 15 prospecting licences that comprise the Leinster lithium property (the "Property"). The purpose of this report is to summarize historic work carried out on these material properties towards an acquisition and fund raising.

The Leinster Property consists of fifteen prospecting licence areas (PLAs) covering an area of approximately 477 $km^2$ and is located in the counties of Wicklow and Dublin in the Republic of Ireland. All licences are currently owned by LRH Resources Limited. Technology Minerals is using this report to acquire LRH Resources Limited through a standard listing on the London Stock Exchange.

Lithium-bearing (spodumene) pegmatites in Ireland were known to be associated with the Leinster Batholith since 1818. Crustal thickening due to continental collision in the Caledonian orogeny resulted in the melting of the lower crust to form S-type granites, which were emplaced in the late Silurian – early Devonian. Late fractionation of these granites led to an enrichment of incompatible elements (e.g., lithium, caesium, tin, tungsten and tantalum) that subsequently intruded the surrounding country rocks as pegmatite dykes. Exploration for spodumene pegmatites has only taken place to the south of the Property, near Blackstairs, where up to nineteen prospects have been identified.

Most of the early mineral exploration on the permit focused on base metals and gold. A regional geochemical survey by the Geological Survey of Ireland indicated elevated lithium in stream sediment in the Property area. The first exploration to focus on lithium in the north Leinster Batholith was by LRH Resources when they acquired the PLAs in 2018. Since then, LRH Resources has used a variety of techniques such as soil geochemistry, deep overburden sampling lithogeochemical prospecting, and ground geophysics to identify bedrock occurrences of lithium and help determine the best exploration technique to employ to explorer the Property.

No bedrock lithium mineralization has been discovered on the property, due to poor exposure at the granite margins caused by weathering and the presence of glacial overburden. However, spodumene pegmatite float and lithium enriched aplite float has been discovered at Aghanvannagh (1.78% $Li_2O$), Sorrel (1.65% and 0.65 % $Li_2O$), and Tonygarrow (1.00% $Li_2O$), indicating a bedrock source is likely close by.

Based on reviews of historic exploration, all PLAs are considered prospective for lithium-bearing pegmatites. A two-stage, contingent, work program is recommended for the Property. A work program consisting of remote sensing structural/alteration study, geological mapping, lithogeochemical sampling, ground magnetic/resistivity surveying, deep overburden sampling, and limited diamond drilling are proposed for Phase One. Additional diamond drilling, if warranted, will take place in Phase Two. The cost estimate for the Phase One program is €269,500 / £235,500. If warranted, the cost for Phase Two is €132,000 / £115,000, for a total work programme cost of €401,500 / £349,500.

# 2 INTRODUCTION

## 2.1 Terms of Reference, Scope & Purpose of Report

In March 2021, Technology Minerals Limited ("Technology") retained Aurum Exploration Services (Canada) Limited to prepare a technical report in accordance with the requirements and standards of National Instrument 43-101, '*Standards of Disclosure for Mineral Projects',* for the Leinster Lithium exploration project currently held by LRH Minerals Ireland Limited ("LRH"). Technology Minerals Limited is a London-based mineral exploration company focused on exploration of mineral resource projects in Ireland, Spain, Cameroon, and the USA. Technology Minerals is using this report for admission to the London Stock Exchange. Additional information about Technology, including press releases and public documents, can be viewed at the company's website www.technologyminerals.co.uk.

The technical report was successfully completed in April 2021 and is the author is responsible for the entire report.

The primary objectives of this report are to:

- consolidate and review all available past and present work
- identify risks and opportunities for the project
- make recommendations for a path forward and for further work

This report was prepared in accordance with the requirements and standards for disclosure of the stock exchanges overseen by the Canadian Securities Administrators, namely, NI 43-101, Companion Policy 43-101CP, Form 43-101F and the Canadian Institute of Mining, Metallurgy and Petroleum ("CIM") Standards on Mineral Resource and Reserves – Definition and Guidelines.

## 2.2 Sources of Information & Data

The author prepared this report using information from the following sources:

- assay data obtained from the permit holders, LRH Resources, through a program of field sampling and analytical laboratory processing of field samples
- technical reports submitted to the Irish government as part of exploration expenditure obligations
- academic literature from peer reviewed journals and government reports
- press releases from publicly traded companies

The author has no reason to doubt the reliability of the information provided by LRH Resources or the other sources listed.

### 2.3 Visit to the Property by the Qualified Person

Due to the ongoing COVID-19 pandemic it has not been possible to complete a site visit at this time, however the two Directors of LRH Resources Ireland Limited EurGeol Vaughan Williams, PGeo, and Wilson Robb have made multiple trips to the project area, with oversight of sampling and industry best practices. The author has assumed that all professional and ethical guideline of the Institute of Geologists of Ireland (PGeo) and the European Federation of Geologists (EurGeol) have been followed by the member of these organizations.

# 3 RELIANCE ON OTHER EXPERTS

This evaluation of the Leinster Property is partially based on historical data derived from Irish Mineral Assessment Files and their regional reports that are derived from www.mineralsireland.ie. Rock sampling and assay results are critical elements of this review. The description of sampling techniques utilized by previous workers is poorly described in the assessment reports and, therefore, the historical assay results must be considered with prudence.

As of the date of this report, the author is not aware of any material fact or material change with respect to the subject matter of this technical report that is not presented herein, or which the omission to disclose could make this report misleading.

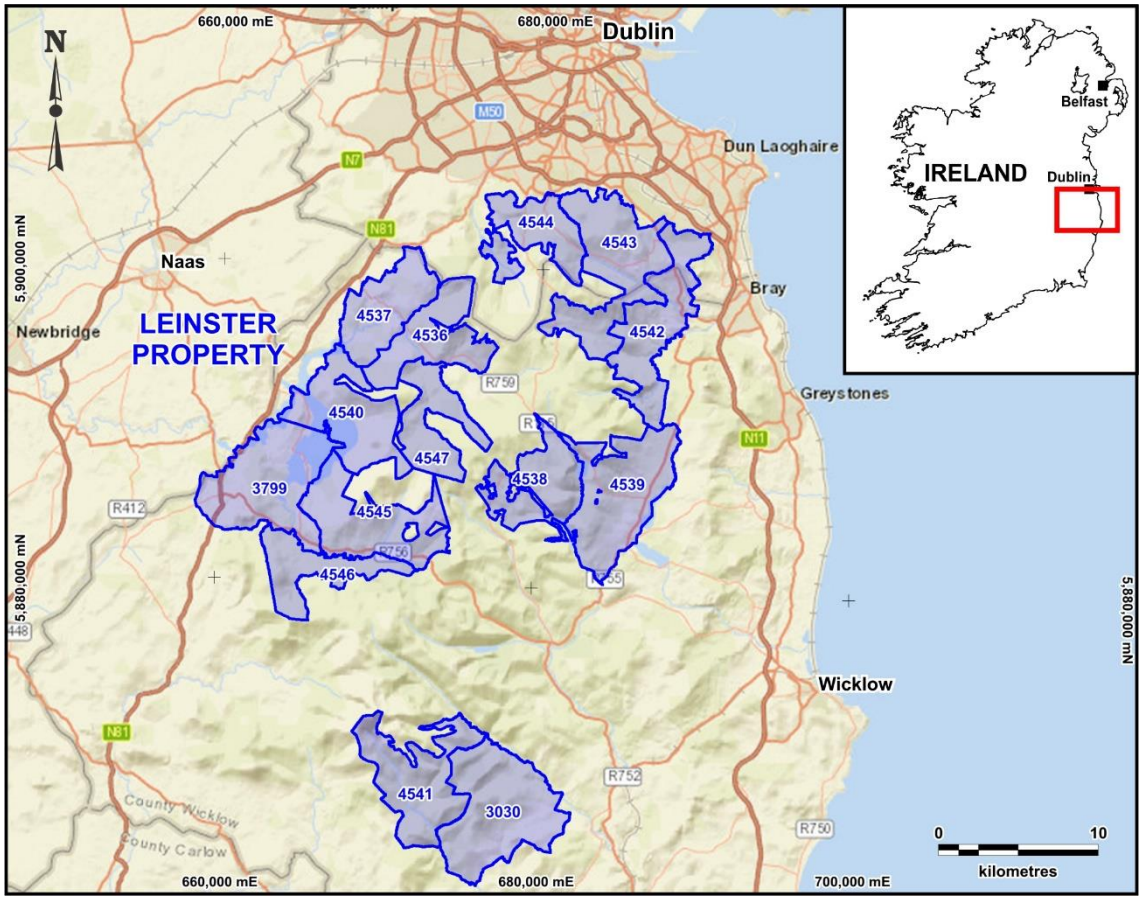
The author has relied on legal representations by the Company's legal team Setfords Solcitors, as communicated by Paul Puxon (Senior Consultant Solicitor), with addresses at Jenner House, Guildford, Surrey, UK, particularly in respect the property acquisition, property deal, rights, and or any back in rights of LRH Resources to the Property.

# 4 PROPERTY DESCRIPTION & LOCATION

### 4.1 Size and Location

The Leinster Property is comprised of fifteen (15) prospecting licence Areas (PLAs) in the south east of the Republic of Ireland (Figure 4-1). The PLAs cover a total area of 477.39 $km^2$ and are situated in counties Wicklow and Dublin. The Property runs from the suburbs of Dublin (pop. 544,107 in 2016) to 40 km to the south.

*Figure 4-1: Property Location*




*Source: drafted by Archibald, 2021*

## 4.2 Mineral Tenure

### 4.2.1 General Tenure Rights

All mineral rights in the Republic of Ireland are held by the State and are administered by the Exploration and Mining Division ("EMD") on behalf of the Department of Environment, Climate and Communications.

A Prospecting Licence typically covers an area of approximately 35 km$^2$. Prospecting licences are issued for a period of six years (maximum), for specified minerals, and can be renewed. A minimum expenditure per licence is required, and varies with the age of the licence (see Table 4-1). A minimum work program is also required, details of which are agreed to with the licensee. Progressively increasing work and expenditure commitments are required on renewal. Submission of work reports are required every two years, and are held confidential for six years thereafter, or until expiry or surrender of the associated licence. Third party insurance, indemnifying the Minister Environment, Climate and Communications, is required for the period of the licence.

If a commercial discovery is made on a PLA, a state Mining Lease is granted exclusively to the PLA holder, subject to the holder complying with certain terms and conditions. Land access for exploration and mining development is negotiated with landowners, with the payment of agreed compensation for access and land/mineral use (where minerals are privately owned). The state

takes no shareholding in mines, but will require a royalty to be paid. Mining Lease terms are currently on a "case-by-case" basis and generally on a phased schedule. For example, at the Lisheen Zn-Pb mine in County Tipperary, a concessionary royalty of 1.5 to 1.75% was levied up to 2007, and rising to 3.5% thereafter. Similarly, at Galmoy, Co. Kilkenny, the royalty rate varied over the life of the mine between 1.25 and 2.25%. Applicants are also required to obtain planning permission and an Integrated Pollution Control Licence.

LRH (Ireland) has reported it is not aware of any significant factors and risks that may affect access, title, or the right or ability to perform work on the property.

***Table 4-1: Prospecting Licenses Fees and Minimum Expenditure Requirements***

| Fees | Competition / Standard Areas | Incentive Areas |
|---|---|---|
| First 2-years | € 750 | € 350 |
| Second 2-years | € 875 | € 375 |
| Third 2-years | € 1,500 | € 500 |
| **TOTAL** | **€ 3,125** | **€ 1,225** |
| **Minimum Expenditure Requirements** | | |
| First 2-years | € 10,000 | € 2,500 |
| Second 2-years | € 15,000 | € 5,000 |
| Third 2-years | € 20,000 | € 10,000 |
| **TOTAL** | **€ 45,000** | **€ 17,500** |

### 4.2.2 NW Leinster Property Tenure Rights

The property consists of fifteen prospecting licences (PLAs) known collectively as the NW Leinster Property. Fourteen of the PLAs are incentive areas, and one is a standard area (Table 4-1). These areas are outlined in Figure 4-1. On October 12th and 23rd, 2018, LRH Resources was awarded the PLAs. These PLs are issued for a period of six years, with progress reports and expenditures filed with EMD every two-years. All PLs are set to expire in October 2024 but can be renewed for another six-years if they are in good standing. The licences were issued primarily for lithium (Li) and associated elements including beryllium (Be), niobium (Nb), rubidium (Rb), and rare earth elements (REE), and also secondary mineralization for zinc (Zn), lead (Pb), silver (Ag), and gold.

If the project proves to be economic, the government will negotiate a Net Smelter Return (NSR) royalty on the project. This typically is between 1.5 to 3.5%.

***Table 4-2: Summary of the prospecting licences making up the Leinster Property***

| PLA No. | County | Area (km$^2$) | Licence Start date | Metals |
|---|---|---|---|---|
| 3030 | Wicklow | 44.95 | 12/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 3285 | Wicklow | 40.59 | 12/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 3799 | Wicklow | 41.88 | 12/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4540 | Wicklow | 31.07 | 12/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4541 | Wicklow | 33.71 | 12/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4545 | Wicklow | 32.53 | 12/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4546 | Wicklow | 20.12 | 12/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4536 | Wicklow | 25.58 | 23/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4537 | Wicklow | 24.58 | 23/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4538 | Wicklow | 24.93 | 23/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4539 | Wicklow | 40.34 | 23/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4542 | Dublin/Wicklow | 33.06 | 23/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4543 | Dublin/Wicklow | 40.65 | 23/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4544 | Dublin | 21.9 | 23/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |
| 4547 | Wicklow | 21.5 | 23/10/2018 | Base metals, Ag, Au, Be, Li, Nb, REE, Rb |

### 4.2.3 Current Agreement

The Leinster Property is current in Joint Venture between LRH (Ireland) and Global Battery Metals (TSXV: GBML). The agreement provides GMBL with three staged options:

1. To earn 17.5% equity by spending €85,000 on the Project and up to €6,500 on licences up to 12 October 2022;
2. If Option 1 is exercised, a further 37.5% equity by spending a further €500,000 within two years of the exercise of the 1st Option, and paying €50,000 (i) in cash or (ii) Global shares at market price and €5,000 in cash.
3. If Option 2 is exercised, a further 35% equity by spending a further €1,000,000 within two years of the exercise of the 2nd Option, and paying €200,000 (i) in cash or (ii) Global shares at market price and €20,000.

GBML are required to fund the exploration of the Project, and when GBML reaches 55% interest a joint venture is to be formed with dilution provisions whereby if LRH is diluted below 10% its interest will convert a 2% gross proceeds royalty equal to 2% of the actual cash proceeds. GBML has the right to buy back this interest within 12 months of exercising the 3rd option and paying €1,000,000 in cash or in GBML shares.

### 4.2.4 Proposed Agreement

Technology Minerals limited is acquiring 100% of LRH Ireland through a cash and share transfer. Any agreements in place with LRH Ireland will be transferred to Technology Minerals Limited.

The author reviewed the Prospecting Licences as issued to LRH (Ireland) on March 1, 2021 via the Minerals Ireland website "EMD OPALS Viewer" to identify the detailed spatial locations and associated ownerships of the PLAs that are the subject of this report (https://dcenr.maps.arcgis.com/apps/webappviewer/index.html). The results of both reviews conform with what the company has provided to the author. However, this does not constitute a

legal opinion on the mineral title(s) currently held by LRH (Ireland) as this is outside of the competency of the author.

### 4.2.5 Obligations on the Property

Based on the amounts stated in Table 4-1, LRH (Ireland) has a committed expenditure of €90,625 in the next two-year period (October 2020 to October 2022), and increasing to €167,500 in the subsequent period.

### 4.2.6 Surface Rights and Access

Surface rights can be held by the State, local authorities, or held by individuals. Holding a prospecting licence does not automatically grant the owner surface access rights. Permission must be granted by the surface rights holder. This has not been an issue with the LRH (Ireland).

### 4.2.7 Environmental Liabilities

The author is not aware of any existing environmental liabilities related to the Wicklow Block. The company also reports that they unaware of any environmental liabilities.

### 4.2.8 Exploration Permits and Significant Risk Factors

The author is not aware of any significant factors and risks that may affect access, title, or the right or ability to perform work on the property. In addition, LRH (Ireland) has reported that it is not aware of any significant factors and risks that may affect access, title, or the right or ability to perform work on the property. There are no permits on the properties, nor is any required for the recommended work program.

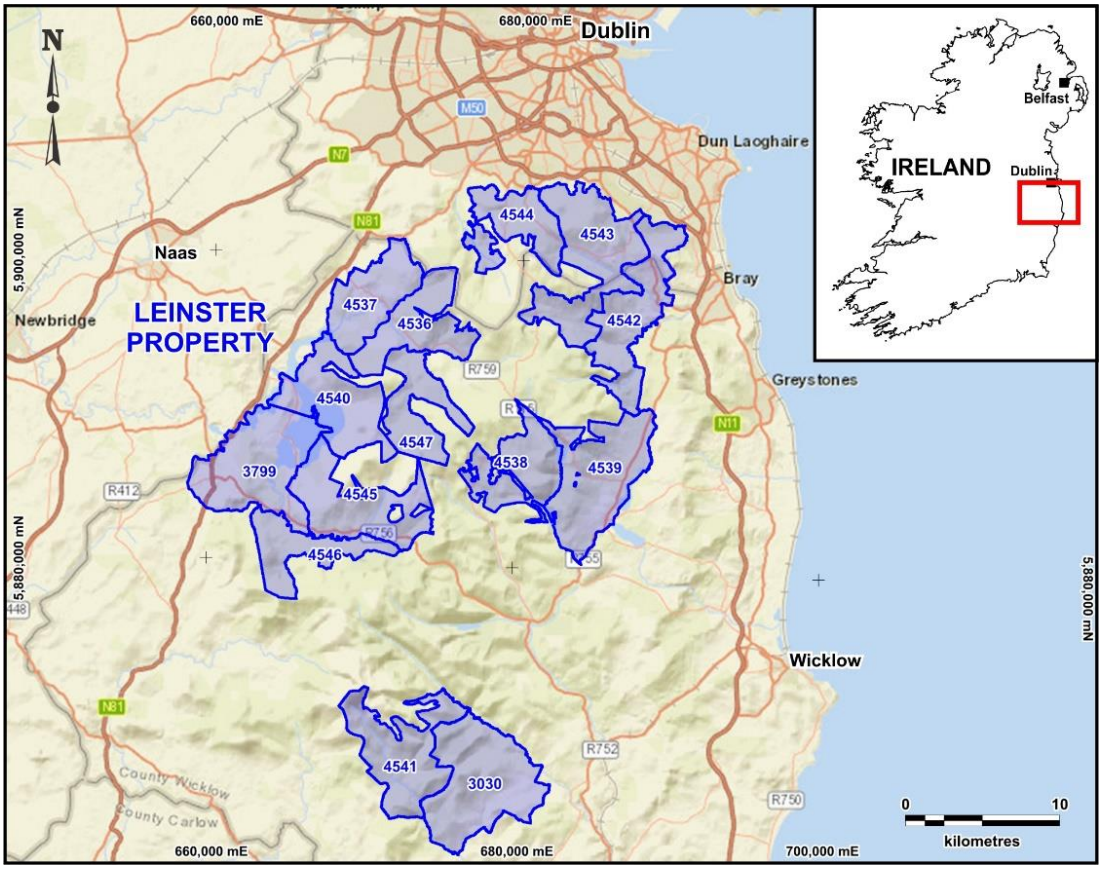
# 5 ACCESSIBILITY, CLIMATE, LOCAL RESOURCES, INFRASTRUCTURE AND PHYSIOGRAPHY

## 5.1 Accessibility

The project area is served by an extensive network of surrounding motorways (M11, M9 and M11), a national road (N81), with access to the individual licences by a series of rural roads, e.g., R759, R756 and R747. Numerous farm tracks are also present in the area that afford local access. An operating railway line (Dublin to Wexford) runs parallel with the east coast of Ireland, located approximately 15 km east of the project area.

The project area has good access to several deep-water ports, including: – Dublin (including container terminal), Wicklow and Arklow.

***Figure 5-1: Property Location and Access Routes***




*Source: drafted by Archibald, 2021*

## 5.2 Climate

The climate in the NE Leinster Property is defined as a temperate maritime climate, characterized by mild, damp summers and cool, wet winters. Annual rainfall varies between 1,500 and 2,000 mm, June and July are generally the driest months and there is an average of four hours of sunshine a day over the entire year. Snow cover in winter reaches an average of 50 days a year on the highest peaks, at lower altitudes however, more than 5 days of snow cover per year is unusual.

***Figure 5-2: Average temperature, precipitation and rainfall in Wicklow by month***

| | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Avg. Temperature (°C) | 5.2 | 5.2 | 6.4 | 8.3 | 10.9 | 13.6 | 15.4 | 15.2 | 13.4 | 10.9 | 7.5 | 6.1 |
| Min. Temperature (°C) | 2.7 | 2.6 | 3.3 | 4.7 | 7.1 | 9.8 | 11.6 | 11.5 | 9.9 | 7.8 | 4.7 | 3.5 |
| Max. Temperature (°C) | 7.8 | 7.9 | 9.6 | 11.9 | 14.7 | 17.5 | 19.2 | 19 | 17 | 14.1 | 10.4 | 8.8 |
| Avg. Temperature (°F) | 41.4 | 41.4 | 43.5 | 46.9 | 51.6 | 56.5 | 59.7 | 59.4 | 56.1 | 51.6 | 45.5 | 43.0 |
| Min. Temperature (°F) | 36.9 | 36.7 | 37.9 | 40.5 | 44.8 | 49.6 | 52.9 | 52.7 | 49.8 | 46.0 | 40.5 | 38.3 |
| Max. Temperature (°F) | 46.0 | 46.2 | 49.3 | 53.4 | 58.5 | 63.5 | 66.6 | 66.2 | 62.6 | 57.4 | 50.7 | 47.8 |
| Precipitation / Rainfall (mm) | 90 | 69 | 69 | 55 | 63 | 55 | 54 | 73 | 83 | 90 | 90 | 104 |

*Data from Climate-data.org*

## 5.3 Local Resources

The distance from the central part of the Property (Blessington) to the Dublin deep-water port and container terminal is approximately 35 km via the main N81 trunk road. A main railway line (Dublin – Waterford) is located just 15 km east of the Project area. 110 kV and 220 kV power lines run parallel to the northwest and southwest boundaries of the project area.

## 5.4 Physiography

The Property is located within the Wicklow Mountains, which forms a large continuous upland area trending in NE-SW direction south of Dublin. The mountains are centered in county of Wicklow and stretch outside of the county borders into counties Dublin, Wexford and Carlow. The Wicklow Mountains cover an approximate area of 3000 $km^2$ with Lugnaquilla as the highest mountain peak (925 m).

The topography of the Property is variable with prevailing hills and glacial valleys in the central and eastern part of the block of prospecting licences and gently rolling agricultural land in the western part of the project area. The elevation varies between 190 m MASL (Pollaphuca Reservoir) and up to 925 m MASL (Lugnaquillia Mountain). The west and northwest part of the Block is drained by the River Liffey, the southern part is drained by River Slaney and eastern part is drained by Vartry, Glenmacnas/Avonmore, Avonberg/Avoca and Ow/Aughrim rivers.

There are also a number of lakes (mainly of glacial origin) in the project area – the largest being Lough Ouler, Lough Tay, and Lough Dan with several smaller lakes scattered within the valleys. The Pollaphuca Reservoir, is located in the western part of the project area, built between 1937-1947. The reservoir has a hydroelectric station and provides a source of water for Dublin. The main water source for Dublin is the Warta reservoir located east of the Property area. The Vartry Reservoir also sits on the southeastern margin of the Property.

***Figure 5-3: Physiography of the Cloghoge River valley (PLA 4539), Wicklow Hills***

*Source: Derek Bridger, (Google Earth, 2021)*

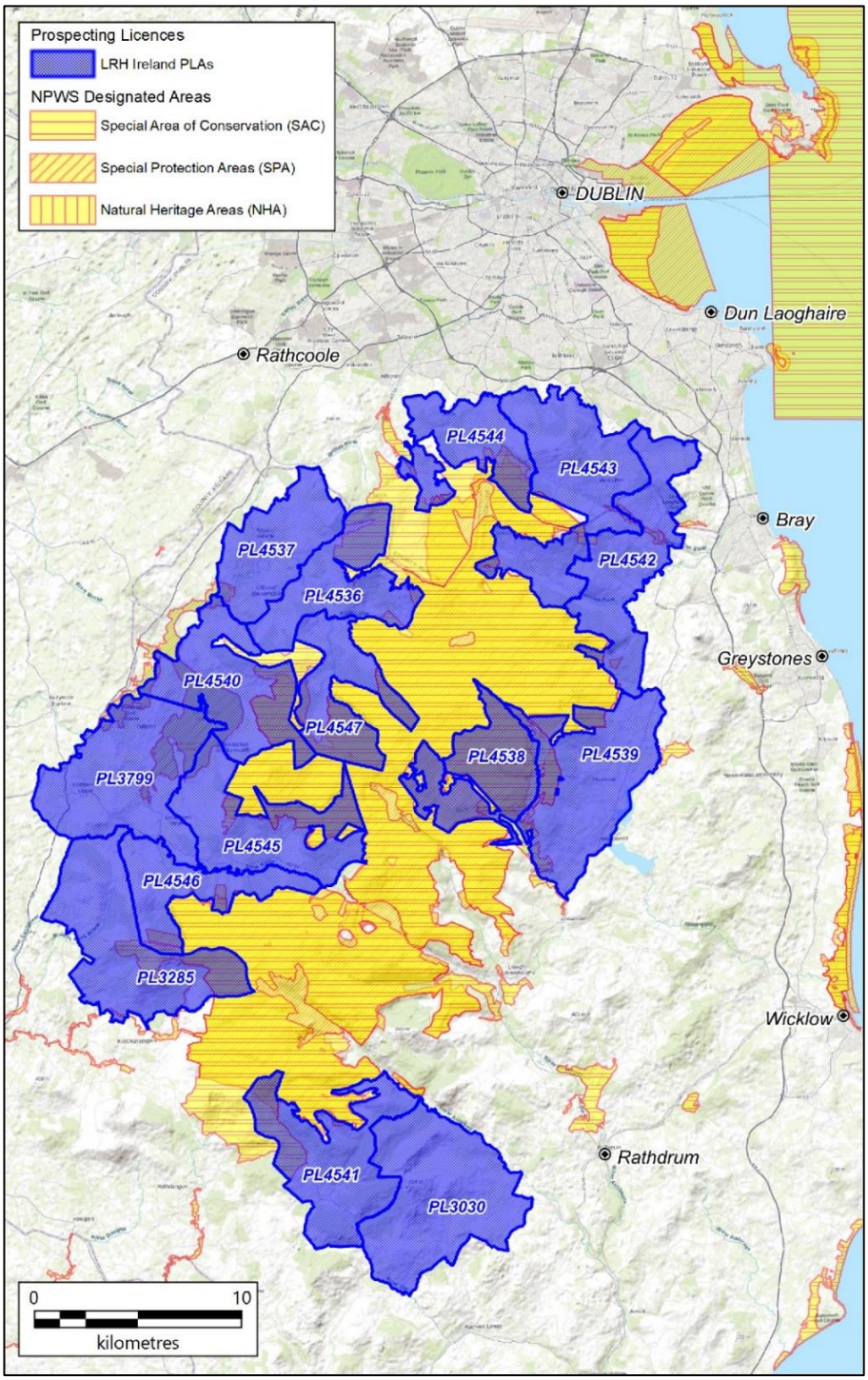
## 5.5 Heritage and Environment

County Wicklow, especially within the Wicklow Mountains represents a significant amenity area for both national and international visitors along with the local populace of the City of Dublin. Much of the upland area of the Wicklow mountains are covered by National Park status and there are no issued prospecting licences within this designation. The Wicklow mountains is also host to several public water reservoirs and many parts of the upland reaches are under the protection of EU and Irish Law where potential commercial including agricultural activity is closely monitored.

Within the Property there are several types of designated conservation and heritage area:

- Special Protection Areas (SPA). These areas have a primary focus on preserving suitable habitat for migratory and domestic birds. There are 12 areas within the Property
- Proposed National Heritage Areas (pNHA). The majority of protected areas within the Property are woodland, upland bog and valleys, protected mostly due to their amenity value. – 19 areas occur in the Property.
- Special Areas of Conservation (SAC). The areas protects one or more special habitats and/or species, either terrestrial or marine. There are no large areas of SAC on the Property, and where they do occur, they are at the edge of some of the licences, or area where mineralization is unlikely.

***Figure 5-4: Location of protected areas in the Property***




Source: Williams, 2020

# 6 HISTORY

East Leinster has a rich mining heritage, mainly base metals (copper and lead) and gold have been mined at various localities since ancient times. A number of exploration companies have explored the eastern part of Leinster Property for various commodities in modern times, mainly for base metals, gold, tungsten, uranium and lithium. The following companies did most of the historical exploration work, which includes prospecting, geological mapping, stream sediment sampling, soil sampling, geophysical surveying and drilling:

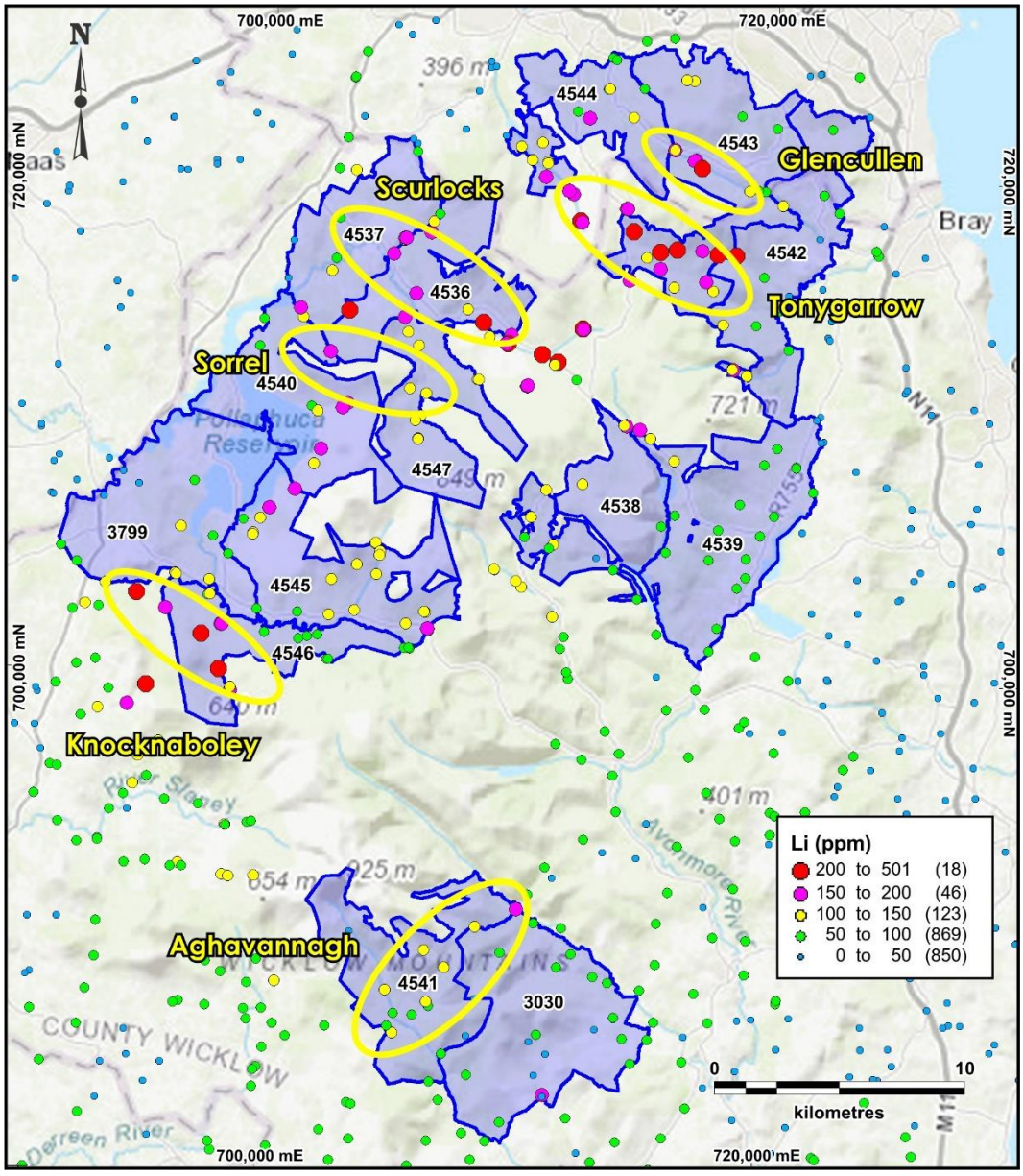
- Irish Base Metals Limited/Westland Exploration (1970-1991) – Base metals, tungsten, uranium, lithium
- New Sabina Resources, Celtic Gold PLC, RioFinEx (1985-1990) – Gold
- Avoca Gold Exploration (1985-1989) – Gold
- Navan Resources (1988-1991) – Lithium, andalusite, gold
- WA Exploration Services Pty LTD & MG Greasy (unknown dates) – Gold
- Angus and Ross (unknown dates) – Tantalum
- Moville Minerals LTD (2001-2003) – Tantalum
- Blackstairs Lithium (2009-Current) – Lithium

In addition to the commercial studies above, the Geological Survey of Ireland (GSI) carried out a regional lithogeochemistry program between 1972 and 1994, and a stream sediment sampling programme between 1986 and 1990. This latter program was supplemented by an additional TELLUS stream sediment sampling from 2011 to 2017. In 2019 the Property was flown for airborne radiometrics, magnetics, and electromagnetics (EM) as part of the government funded TELLUS program, and the area is currently (2021) being tested through soil geochemistry. In 2020, the GIS analysed the retained samples from the 1986-1990 stream sediment program for lithium. This data was published in February 2021 and shows the strong lithium anomalism over the Property (Figure 6- 1). All of the GSI and TELLUS information is freely available through the Geological Survey of Ireland website.

Lithium mineralization was first document in Leinster by Taylor (1818) who discovered "killinite" a variety of muscovite formed by the alteration of spodumene. However, it was not until 1836 that Thompson discovered spodumene at the same location. In the 1970s, Irish Base Metals identified an abundance of spodumene pegmatite boulders 40 km south of the Property near Blackstairs (Steiger and von Knorring, 1974). Shortly afterwards bedrock pegmatite bodies 20 m wide and over 400 m long were identified at Aclare by Irish Base Metals (Steiger, 1977). In 2009, the PLA containing the Aclare pegmatite was licensed to TNR Gold (TSXV: TNR), which was then transferred to International Lithium Corporation (TSXV: ILC). Lithium Corporation performed shallow soil sampling, ground geophysics and drilling on the property.

No exploration lithium exploration has been carried out on the Property, but the mineralization at Aclare is provided to show that spodumene-bearing pegmatites are present in the proximal area.

***Figure 6-1: Lithium content of stream sediments analysed in 2020 by the GSI. LRH target areas also illustrated.***




Source: Archibald 2021

# 7 GEOLOGICAL SETTING & MINERALIZATION

## 7.1 Regional Geology and local Geology

The rocks in the Leinster Property formed during the closure of the Iapetus ocean during the Lower Paleozoic (490 – 430 Ma). During the Caledonian Orogeny, crustal thickening resulted in the partial

melting of the lithosphere to generate a granitic melt (Harris et al., 1979). The melt was previously thought to have been emplace 405 Ma to form the Leinster Granite, but new data suggests that the intrusion formed as three pulses over a 16.8 Myr period, from 417.4 to 404.9 Ma, with the main emplacement taking place at 409.8 Ma (Fritschle et al., 2017). Extreme fractionation of these plutons led to the enrichment of incompatible elements, including lithium, in the associated pegmatite bodies.

The Leinster Property covers the northern part of the Leinster Granite Batholith in SE Ireland. In general, the south part of Ireland is composed of sedimentary, volcaniclastic and intrusive igneous rocks of various composition and ages. The dominant geological feature in the area is the Caledonian–aged (Silurian-Devonian) Leinster Granite batholith which is composed of five main dome plutons of various granitic compositions. The Leinster Granite batholith trends NE-SW. The body of the batholith is intruded by younger granitic dykes (pegmatites and aplites) and is surrounded by a metamorphic aureole, which altered the surrounding country rocks comprising of the Cambrian-Ordovician Duncannon, Ribband and Bray groups) and the Silurian Kilcullen Group Paleozoic sediments and volcaniclastics (Bruck et al., 1979; Graham and Stillman, 2009).

The Lower Paleozoic rocks are regionally metamorphosed to greenschist facies. Significant hydrothermal activity, related to the dewatering of the granite during cooling formed different types of mineralization (e.g., Li-bearing pegmatites, tungsten greisens and microgranites, gold-bearing quartz veins, andalusite rich horizons, etc.) hosted in these sedimentary units (McArdle and Keenan, 1988; Keenan et., 1986).

The Wicklow Mountains are largely covered by Quaternary glacial drift largely derived from the underlying bedrock geology with an average thickness of 2 to 20 metres, although there are patchy areas with bedrock at, or close to surface, especially in elevated locations.

## 7.2 Structural Setting – Caledonian Tectonic Deformation

The rocks of southeast Ireland have been affected by polyphase deformation during the Caledonian orogeny. The dominant structural patterns formed during the two (D1 and D2) initial phases of deformation (Kennan et al., 1986). During the D1 phase, a slatey cleavage was developed, as were associated minor structures typical for the Caledonides of south-east Ireland (Kennan et al. 1986). A major zone of intense strain called the East Carlow Deformation Zone formed during the D2 phase and is considered to be a major tectonic feature in SE Ireland.

The East Carlow Deformation Zone (ECDZ) is a ductile tectonic zone developed along the eastern flanks of the Leinster Granite Massif. The zone extends for more than 40 km in a NE-SW direction, is approximately 3 km wide and cuts across both metamorphic and intrusive lithologies. The development of the ECDZ within the aureole of the Leinster Granite is characterised by amphibole-grade metamorphism, but outside this zone the greenschist-facies regional metamorphism prevails (McArdle and Kennan 1987).

## 7.3 Stratigraphy of the Lower Paleozoic Sedimentary rocks

The Lower Paleozoic sequence (Cambrian - Silurian) is divided into four lithostratigraphic groups (Brück et al. 1979; Graham & Stillman, 2009, Holland 2009):

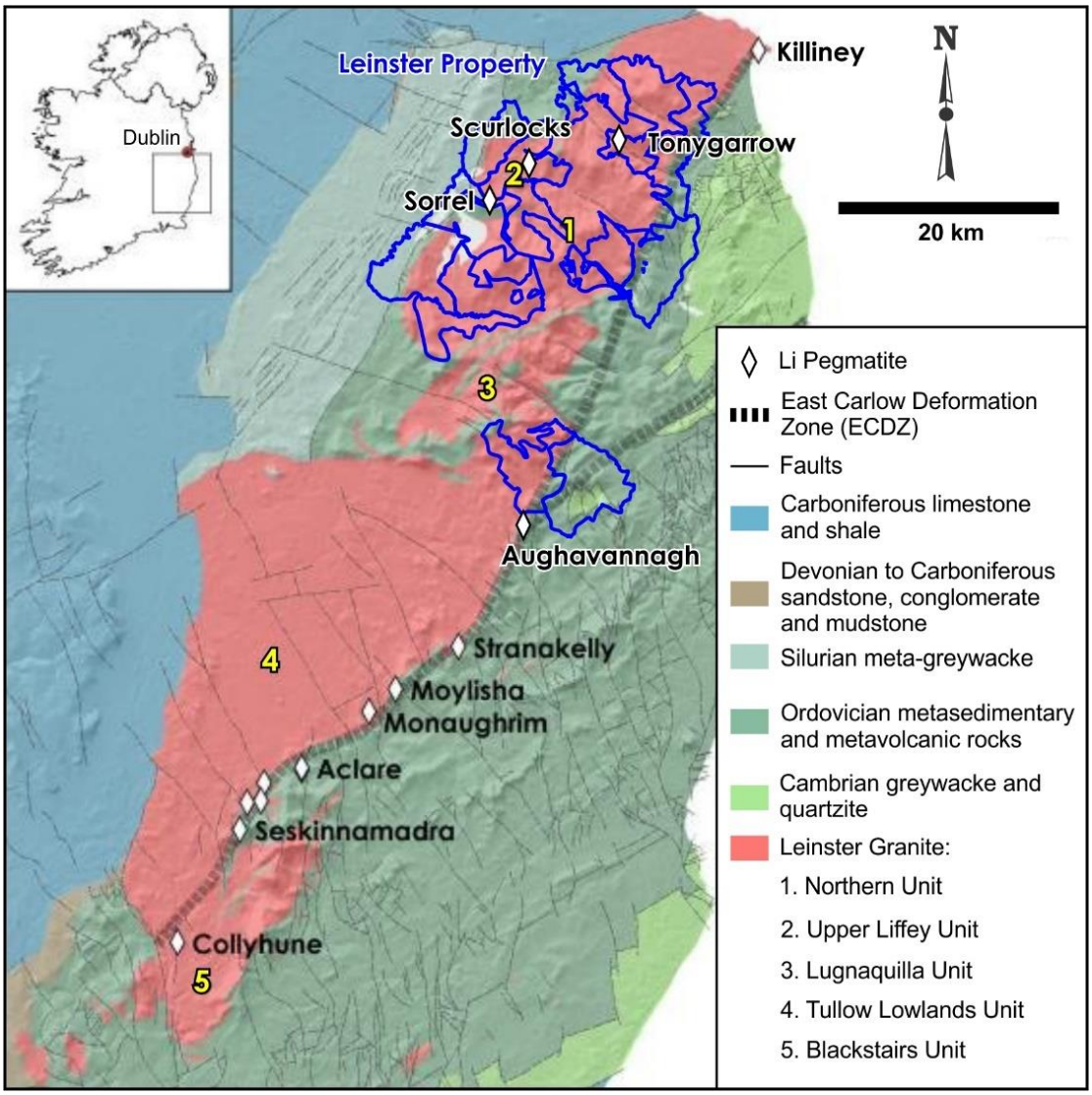
- **Kilcullen Group** (Early-Silurian – Wenlock), greywackes

- **Duncannon Group** (Middle to Late Ordovician – Llanvirn to Ashgill), felsic, intermediate and mafic volcanic rocks, with shale, mudstone and sandstones. Minor limestones and calcareous sandstone occur at the base of the group.
- **Ribband Group** (Early Ordovician – Tremadoc to Arenig), distal turbidites (shale, siltstone, sandstone) and intermediate to mafic volcanic rocks.
- **Bray Group** (Lower to Middle Cambrian), greywacke and quartz arenite.

## 7.4 Granitic Intrusions

The dominant granitic feature in SE Ireland is the Leinster Granite Batholith, which is the largest Caledonian granite intrusion in the British Isles (Sweetman 1987). The main Leinster Granite intrusion consists of five dome-like plutons, which are from north to south termed: Northern Unit, Upper Liffey Valley Unit, Lugnaquilla Unit, Tullow Lowland Unit, Blackstairs Unit (Figure 7-1).

***Figure 7-1: The Leinster granite plutons and lithium occurrences (after Kaeter and Menuge, 2017)***




The western contacts of the bodies are steep in contrast to the moderate dips along the eastern margin. Individual plutons are concordant with the country rocks along the flanks, but are sharply discordant at the terminations (Kennan et al. 1986). The Northern Unit (batholith) has a U-Pb

monazite age of 405 ± 2 Ma (O'Connor et al. 1989), which corresponds to the late Silurian. Each unit comprises a number of different granite types and in the Northern and Upper Liffey Valley Units these have been shown to be concentrically arranged (Brück 1974). Sweetman (1984) studied the Blackstairs Unit in detail and described four main types of granitic rocks: Graiguenamanagh granite, porphyritic microcline granite, porphyritic granite and Type 1 granite. Similar granite types occur in other units of the Leinster Granite.

## 7.1 Property Geology

The 14 prospecting licences that make up the Leinster Property are generally similar, in that they are underlain by rocks that comprise the Leinster Batholith, or at the contact with the Lower Paleozoic country rocks (Figure 7-1). A northern block of licences cover the Northern Unit and Liffey Valley Unit of the batholith. The southern block is underlain by intrusive rocks of the Lugnaquillia Unit and the northern units of the Tullow Lowlands Unit.

**Northern Block (PLA 3799, PLAs 4536-4547)**

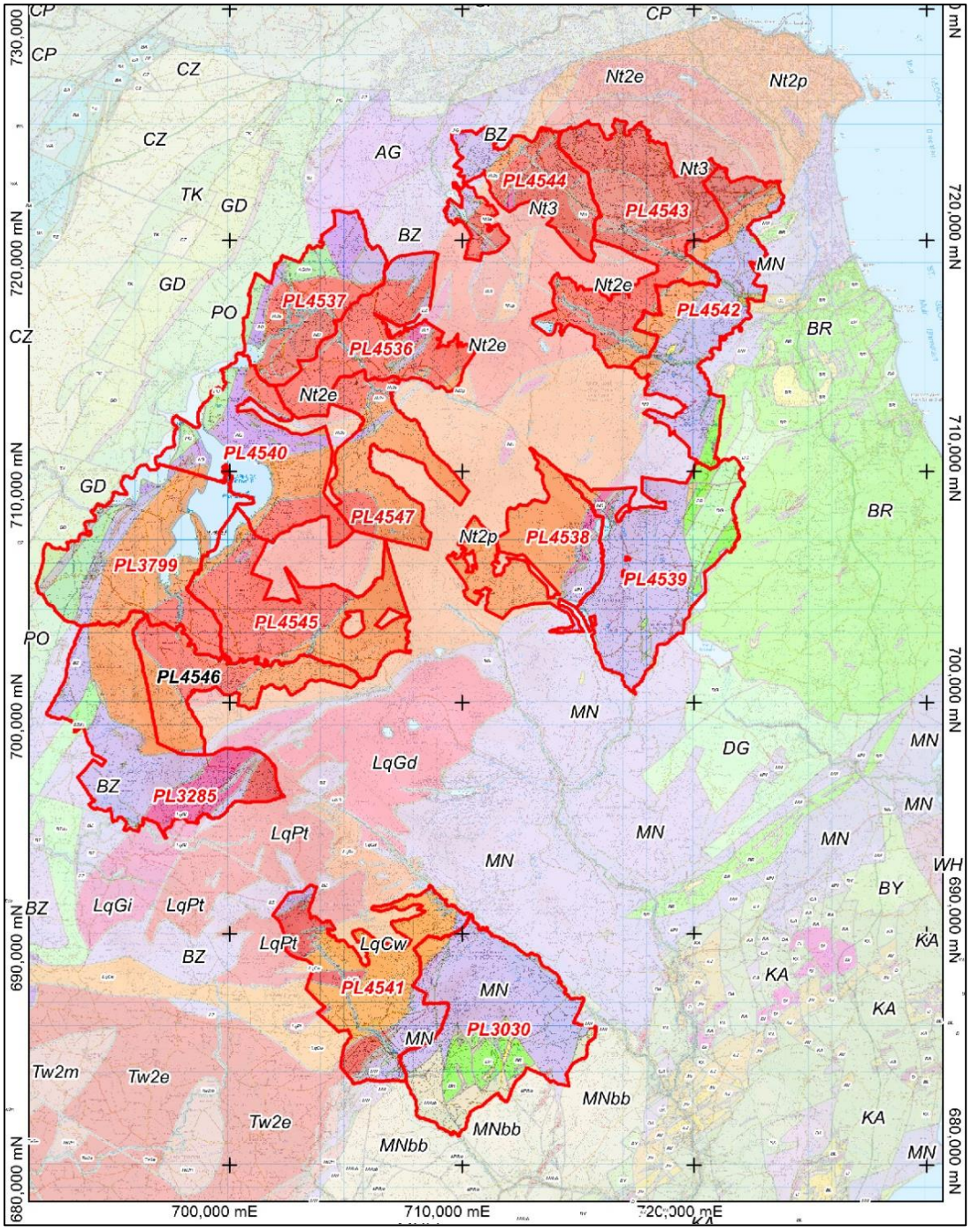
Figures 7-2 and 7.3 illustrated the geology underlying the twelve PLAs of the northern block of the Property. Field mapping, petrography and petrology have defined the underlying igneous units within the Northern Unit and the Upper Liffey Unit. The individual intrusions and intrusive phases of the Northern and Upper Liffey units are defined as: Type-1 (fine-grained granodiorite to granite); Type 2p (microcline porphyritic granite); Type 2e (pale grey fine- to coarse-grained granite); Type 3 (muscovite porphyritic granite); Type 4 (muscovite/microcline porphyritic granite). The eastern margin of the intrusion cuts dark blue-grey slate, phyllite and schist of the Maulin Formation (Ribband Group), and this sheared contacts likely is a continuation of the East Carlow Deformation Zone (ECDZ) seen to the south at Aclare, and associated with lithium pegmatite formation. The western contact sees the granitic intrusions cutting Silurian dark slate-schist and quartzite of the Butter Mountain Formation, greywacke, siltstone, slate and quartzite of the Aghfarrell Formation (both within the Ribband Group), and coarse greywacke and shale of the Pollaphuca Formation (Killcullen Group; Figure 7-3).

**Southern Block (PLA 3030, PLA 4541)**

PLA 4541 is underlain by two intrusive units: the Lugnaquillia Unit and the Tullow Lowlands Unit. The Lugnaquillia Unit comprises of the fine-grained Percys Table Granodiorite and the Carrawaystick Aplite (a white, saccharoidal garnetiferous aplite). It is possible that small fingers of fine-grained, muscovite-rich aplogranite (Barravore Aplogranite) are present on the northern part of the PLA. The southern part of the PL is underlain by a Tullow Type 2 granite that is described as a pale, fine- to coarse-grained granite. PLA 3030 to the east is underlain by a small area of Carrawaystick Aplite. The intrusive rocks cut the slate, phyllite, schist, and intermediate volcanic rocks of the Maulin Formation (Ribband Group).

A summary of the igneous and sedimentary rocks present in each PLA is presented in Table 7-1.

***Figure 7-2**: Geological map of the Leinster Property (GSI 275k geological map).*




*Source: Geological Survey of Ireland*

***Figure 7-3**: Geological legend of the Leinster Property (GSI 275k geological map).*

***Table 7-1:*** *Summary of the rock types on the Leinster Property licences*

| Intrusive Rocks | Prospecting Licence (PLA) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 3030 | 3799 | 4536 | 4537 | 4538 | 4539 | 4540 | 4541 | 4542 | 4543 | 4544 | 4545 | 4546 | 4547 |
| Type 1 (Granodiorite) | | | X | | X | X | X | | | | X | X | | |
| Type 2p (Porphyritic granite) | | X | X | | X | X | X | | X | X | X | X | X | X |
| Type 2e (Equigranular granite) | | X | X | X | | | X | | X | X | X | X | X | X |
| Type 3 (Muscovite porphyritic granite) | | | X | X | | | | | X | X | X | | | |
| Type 4 (Musc. / micro. porphyritic granite) | | | | | | | | | | X | X | | | |
| Percys Table Granodiorite | | | | | | | | X | | | | | | |
| Carrawaystick Aplite | X | | | | | | | X | | | | | | |
| Tullow Type 2 (granite) | | | | | | | | X | | | | | | |
| Country Rock Contact | | | | | | | | | | | | | | |
| Maulin Fm. | X | | | | X | X | | X | X | X | | | | |
| Butter Mountain Fm. | | X | X | X | | | | | | | X | | X | |
| Pollaphuca Fm. | | | | X | | | | | | | | | | X |
| Aghfarrell Fm. | | X | X | X | | | X | | | | | | | |
| East Carlow Deformation Zone | X | | | | X | X | | X | X | | | | | |

Source: Archibald 2021 (Information from Geological Survey of Ireland map)

## 7.2 Mineralization

No lithium pegmatite exploration has previously been conducted on LRH's Leinster Property. The Irish Base Metals lithium exploration project described by Steiger (1973) extended north to Sheilstown, which was at the northern limit of their project, and adjacent to the current LRH block. Boulders containing spodumene (a lithium pyroxene, $LiAl(SiO_3)_2$) were described by Steiger (1973), and the occurrence is located only 500 m south of the southern licence boundary of PLA 4541. One stream sediment map with lithium values from the Irish Base Metals report (Steiger 1976) indicates that there was a plan to extend the lithium pegmatite exploration programme to the north, however no work was undertaken.

The main known occurrences of Irish Lithium (Li) - Caesium (Ce) – Tantillum (Ta) ("LCT") pegmatites are located in the southern part of the Leinster Massif where a belt of lithium-bearing pegmatites was discovered in the Borris – Shillelagh area during 1970s and 1980s (Steiger and von Knorring 1974, Steiger 1977). The pegmatite bodies are situated in a 50-km long belt along the eastern side of the Leinster Granite (Tullow and Blackstairs units) hosted in the deformed Lower Paleozoic rocks of the East Carlow Deformation Zone (ECDZ).

The ECDZ also hosts tungsten mineralization at the north-eastern end the pegmatite belt. Together with the small Killiney Hill spodumene occurrence (south of Dublin, Taylor 1818) the southern Leinster lithium pegmatites represent the only well documented examples of lithium pegmatites in Ireland (Whitworth 1992).

Approximately nineteen larger lithium pegmatite occurrences have been discovered in the southern part of the Leinster granite area to date, but only five of them are known from outcrops (Figure 7-1): Aclare House, Stranakelly, Moylisha, Monaughrim and Seskinnamandra (Whitworth

1992). The extensive Quaternary cover that consists of thick glacial sediments and peat limits the occurrence of pegmatite outcrops.

The pegmatites are up to 20 m thick at Aclare House, where individual veins can be traced along a common NE-SW strike for up to 400 metres (Kennan et al. 1986; Kaeter and Menuge, 2017). The veins are seen to be internally zoned, cut by faults, and are partially discordant with the schist-granite boundary (Whitworth and Rankin 1989). The pegmatite veins are internally zoned, the zonation depends on many factors (mainly rate of nucleation of crystals, fluids pressure, concentration of fluxing elements and thermal gradient).

The best developed pegmatite bodies south of the Property display five main zonations:

1. Quartz – feldspar – muscovite zone
2. Albite – spodumene zone
3. Quartz – spodumene zone
4. Blocky quartz – feldspar zone
5. Quartz core

The quartz-feldspar (albite) zone contains a trace amount of cassiterite, tantalite, beryl, bertrandite, lepidolite and uraniferous microlite (Steiger 1977). Steiger (1977) states that the lithium pegmatites contain an average of 1.35 % $Li_2O$, which occurs mainly as spodumene. The mica-albite-rich parts contain up to 0.2 % Ta related to the presence of columbite – tantalite group minerals (Steiger and von Knorring 1974).

Pyrite, pyrrhotite, arsenopyrite and chalcopyrite impregnation, together with tourmaline, is often associated with the pegmatite wallrock (Steiger 1977, Kennan et al. 1986). The isotopic evidence suggests that the LCT pegmatites were derived from the main Leinster Granite (O'Connor et al. 1991). This is in contrast with recent geochemical, isotopic and fluid inclusion study work performed by Barros (2017), who suggests that the LCT pegmatites were generated through partial melting of metasediments. The partial melting resulted in smalls volumes of magma generated by muscovite and staurolite dehydration melting triggered by heat, and assisted by water influx, from the adjacent intrusions that formed the Tullow Lowlands pluton.

The second type of lithium mineralization noted in southeast Ireland is associated with greisen formation. Tungsten mineralization (scheelite) is associated with two types of granitic rocks: thin granite sheets in the Aughrim - Tinahely area and microgranite at Ballinglen (6 km SW of PLA 3030). The tungsten mineralization within the granite sheets is hosted within narrow quartz veinlets as disseminated scheelite in the greisenized parts of this granite. The style of mineralization in the microgranite is more complex, and it is characterized by a fluorite-arsenopyrite-pyrrhotite assemblage hosted by muscovite greisen, or it is disseminated in bleached, sericitized zones which follow quartz veinlets cross-cutting the microgranite (Kennan et al. 1986).

Prior to LRH's work in the northern part of the Leinster Massif, the only know lithium-bearing pegmatite occurrence was at Killiney Hill [725,900mE, 725,490mN) in south Dublin. However, prospecting performed in 2018 and 2019 identified four locations of spodumene-bearing float. The locations were Aghavannagh (PLA 4541, 1.78% $Li_2O$), Sorrel (PLA 4546, 1.65% $Li_2O$), Tonygarrow (PL 4543, 1.00% $Li_2O$) and Scurlocks (PL 4536, 0.65% $Li_2O$), and are all illustrated in **Figure 7-1**. A fifth area at Knocknaboley (PLA 4546) contained anomalous lithium (820 ppm Li / 0.18% $Li_2O$) in an aplite. All of these areas indicated that a bedrock source of the spodumene pegmatites is nearby and concealed by the Quaternary cover.

***Figure 7-4**: Spodumene-bearing pegmatite containing 1.78% $Li_2O$ (8,280 ppm Li).*


Source: Williams, 2020

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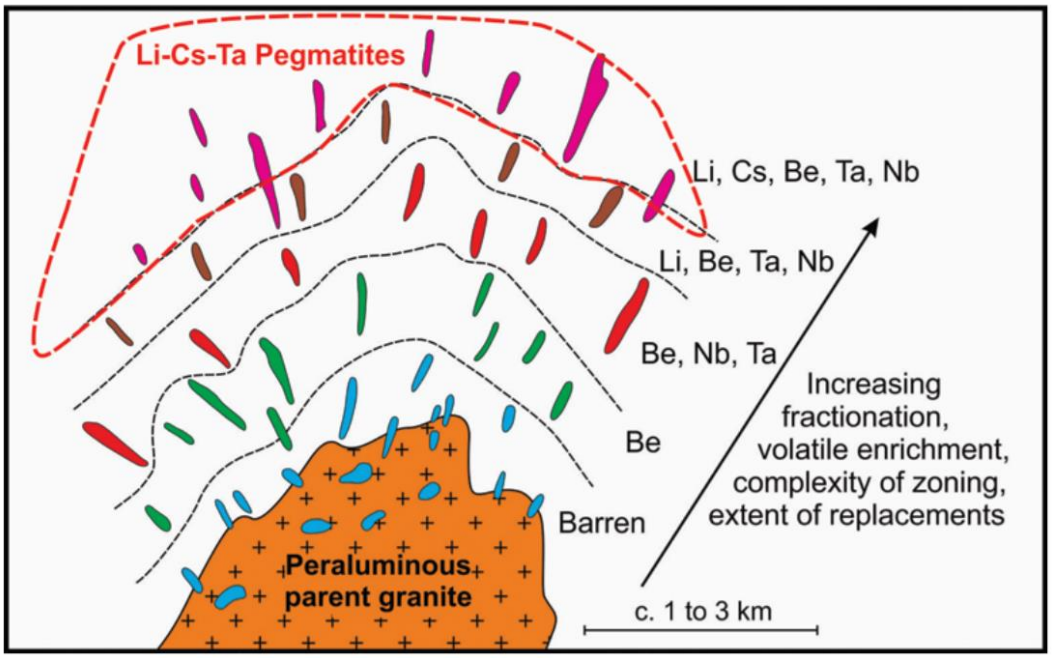
# 8 DEPOSIT TYPES

Granitic pegmatites host many important metals, including lithium, Cs, Sn, Nb, Ta, U, Th and the rare earth elements (REE; Cerny 1993). Pegmatites that host economically significant concentrations of lithium belong to the Lithium-Caesium-Tantalum (LCT) family of pegmatites (Cerny et al. 2005). These deposits are typically low tonnage (< 1 Mt), and high-grade (>0.6% $Li_2O$), (Bradley et al., 2017b). The parent magmas from which these pegmatites are derived are dominantly peraluminous granitoids derived from melting of continental crust at depth (Cerny et al. 2005). Enrichment in lithium and other metals occurs because of extensive fractionation that concentrates these metals into the last magmatic components to crystallize. Pegmatites form as veins, dykes and pods, and can vary in size from a few centimetres in width to tens of metres. Pegmatites are typically concentrated toward the tops of plutons (Bradley et al., 2017a). Lithium-Cs-Ta pegmatites are usually the most distal of all pegmatites from their parent granite (Figure 8-1).

***Figure 8-1:*** *Schematic diagram for an idealised pegmatite swarm illustrating the spatial distribution of different pegmatite types*




*Source: Adapted after Muller et al., 2017*

The type of granite making up the Leinster Massif, the metal anomalism noted in regional stream sediment sampling programs, and the know pegmatite mineralization so far identified all support the view that this style of mineralization could occur on the Leinster Property.

# 9 EXPLORATION

Since acquiring the permits in 2016 several work programs have been performed by LRH Resources Limited. This work has consisted of: data review and target generation; regional prospecting consisting of float and outcrop sampling (91 rock samples); stream sediment verification sampling (11 samples); shallow soil geochemistry (240 samples); deep overburden sampling, ground magnetic survey; physical property tests (magnetic susceptibility); electron microbeam studies on till samples; lithological X-ray diffraction analysis of selected pegmatite samples (MSc study); and research into the use of pathfinder elements and spectral analysis techniques in pegmatite exploration (MSc study).

## 9.1 Data Review and Target Generation

Prior to fieldwork, a comprehensive review of freely available historic geological, geochemical and geophysical data held in the EMD's Open File exploration database. This included data from exploration companies previously active in the Leinster Property area, historical GSI stream sediment data, and Agriculture and Food Development Authority of Ireland (Teagasc) regional soil sample data. Based on these historical data and initial prospecting work, six initial target areas were identified across the Wicklow Block (Figure 6-1): Aghavannagh (PLA 4541), Scurlocks (PLA 4536), Sorrel (PLA 4546), Tonygarrow and Glencullen (PLA 4543), and Knocknaboley (PLA 3285).

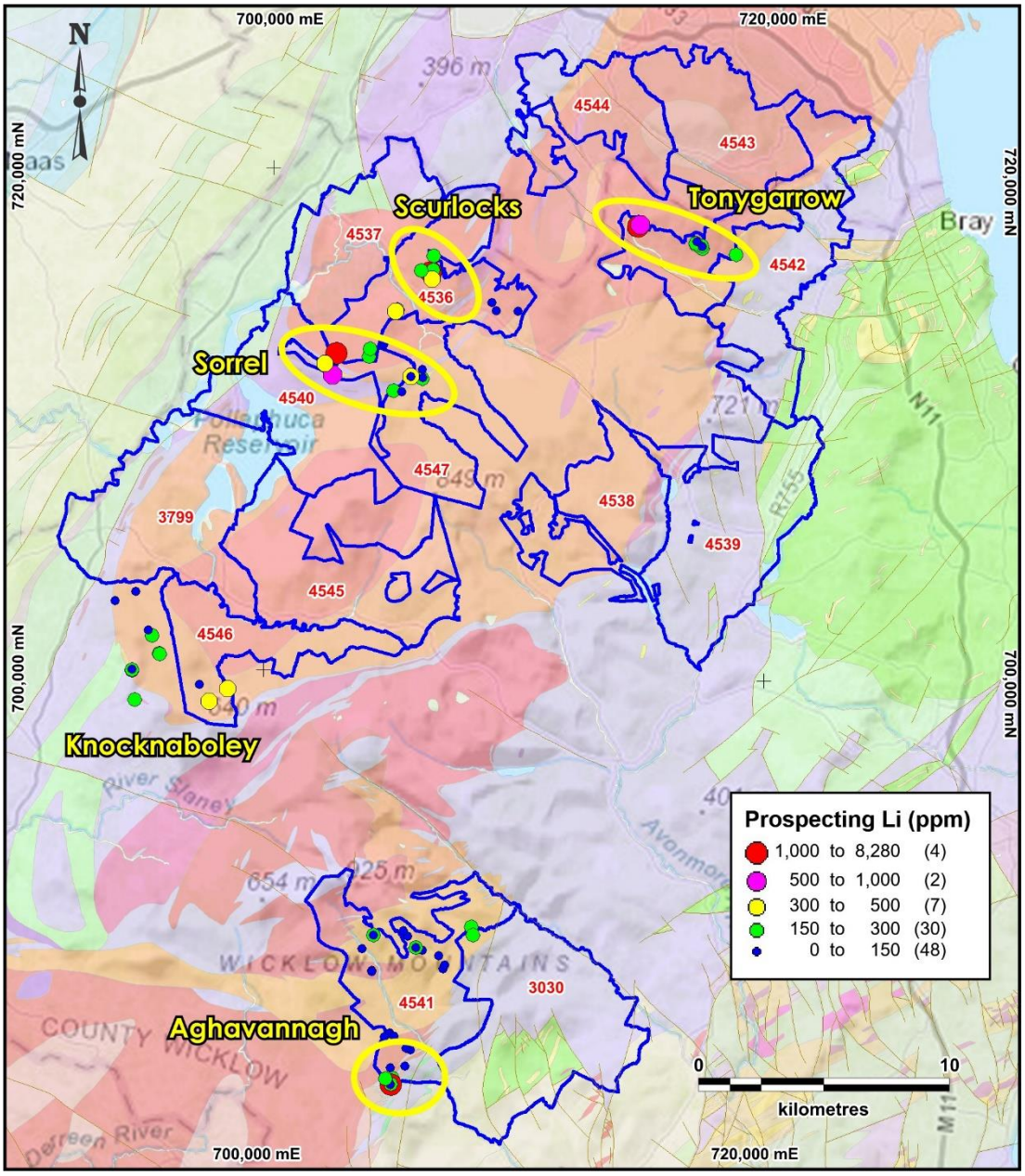
## 9.2 Lithogeochemistry (Float and Bedrock Prospecting)

Primary targets were selected during the review of the historical Open File data. Based on the historical data (soils and stream sediment) the prospecting focused on float and outcrop sampling in and near streams with anomalous values, previously identified float/boulders/outcrops and stone walls, and areas where soil samples with anomalous lithium values were collected (**Figure 9- 1)**. The regional prospecting was conducted over 5 main periods, and summarized in Table 9-1.

***Table 9-1:*** *Summary of the prospecting samples collected on the Property (2016-2019)*

| | Prospecting June 2016 | Prospecting June 2018 | Prospecting Dec 2018 | Prospecting Dec 2018 | Prospecting June 2019 |
|---|---|---|---|---|---|
| **PLA** | No. Samples | No. Samples | No. Samples | No. Samples | No. Samples |
| 3030 | | | | 1 | |
| 3285 | | | 3 | 1 | 7 |
| 3799 | 1 | | | | |
| 4536 | 8 | 2 | 6 | | |
| 4540 | 1 | | 2 | | |
| 4541 | | | 10 | 21 | 2 |
| 4543 | | | 5 | 6 | |
| 4546 | | | 1 | 2 | |
| 4547 | 8 | | 2 | | |
| Off PLA | | | 2 | | |
| **SAMPLES** | **18** | **2** | **31** | **31** | **9** |

***Figure 9-1:*** *Location of prospecting samples on the Property.*




Samples collected in these programs identified pegmatite, aplite (fine-grained granite), granite, and a single sample of massive barite. All of the pegmatite samples were float. From the 91 samples collected and analyzed, 7 were granite, 24 were aplite, 59 pegmatite (or granites/aplites with pegmatite veins), and massive barite sample. As expected, the pegmatite samples contained more lithium (averaging 508 ppm Li / 0.11% $Li_2O$) than the granite (168 ppm Li) or the aplite (283 ppm Li), although this average is highly skewed due to some very enriched samples of pegmatite. Three samples contained more than 1.0% $Li_2O$ (1.78, 1.65 and 1.00%), with four other samples containing more than 0.1% $Li_2O$ (Table 9-2). The grade of these samples is highly encouraging since economic LCT pegmatites should generally contain minimum grades of 1 wt. % $Li_2O$.

***Table 9-2:*** *Summary of the prospecting samples collected on the Property (2016-2019)*

| Sample | East | North | PLA | Prospect | Lithology | Li (ppm) | $Li_2O$ (%) |
|---|---|---|---|---|---|---|---|
| AES43343 | 705453 | 683546 | 4541 | Aghavannagh | Spodumene Pegmatite | 8,280 | 1.78 |
| AES34326 | 702638 | 712675 | 4536 | Sorrel | Pegmatite / spodumene | 7,680 | 1.65 |
| AES43329 | 714552 | 717992 | 4543 | Tonygarrow | Pegmatite/Aplite | 4,630 | 1.00 |
| AX9021 | 706342 | 715973 | 4536 | Sorrel | Aplite | 3,030 | 0.65 |
| AX9031 | 702516 | 711806 | 4540 | Scurlocks | Granite/pegmatite | 740 | 0.16 |
| AES43370 | 714641 | 718057 | 4543 | Tonygarrow | Pegmatite | 590 | 0.13 |
| AES43363 | 702187 | 712252 | 4540 | Scurlocks | Aplite | 470 | 0.10 |

The highest-grade (1.78% $Li_2O$) sample was spodumene pegmatite float collected at the Aghavannagh prospect (Figure 7-4). The next highest-grade samples were also spodumene pegmatite float, from the Sorrel and Tonygarrow target areas (**Figure 9-2 A and B**).

***Figure 9-2:*** *Spodumene pegmatite float found on the Property.*

A: Spodumene pegmatite float from Sorrel containing 7680 ppm (1.65% $Li_2O$)

B: Spodumene pegmatite float from Tonygarrow containing 4630 ppm Li (1.00% $Li_2O$)

## 9.3 Mineralogical and Geochemical Studies

LRH has sponsored two MSc studies over the Property. The first research was a 20-sample X-Ray diffraction (XRD) study to help characterize the mineralogical, and a petrographic study of 4 samples from the Aughnavanagh study (Hart, 2019). The second study, by Alex Moss, is ongoing, and consists of 109 samples collected on known lithium occurrences in the Leinster Massif to investigate the pathfinder elements associated with LCT pegmatites. The latter study should be completed in 2021.

## 9.4 Regional Stream Sediment Sampling

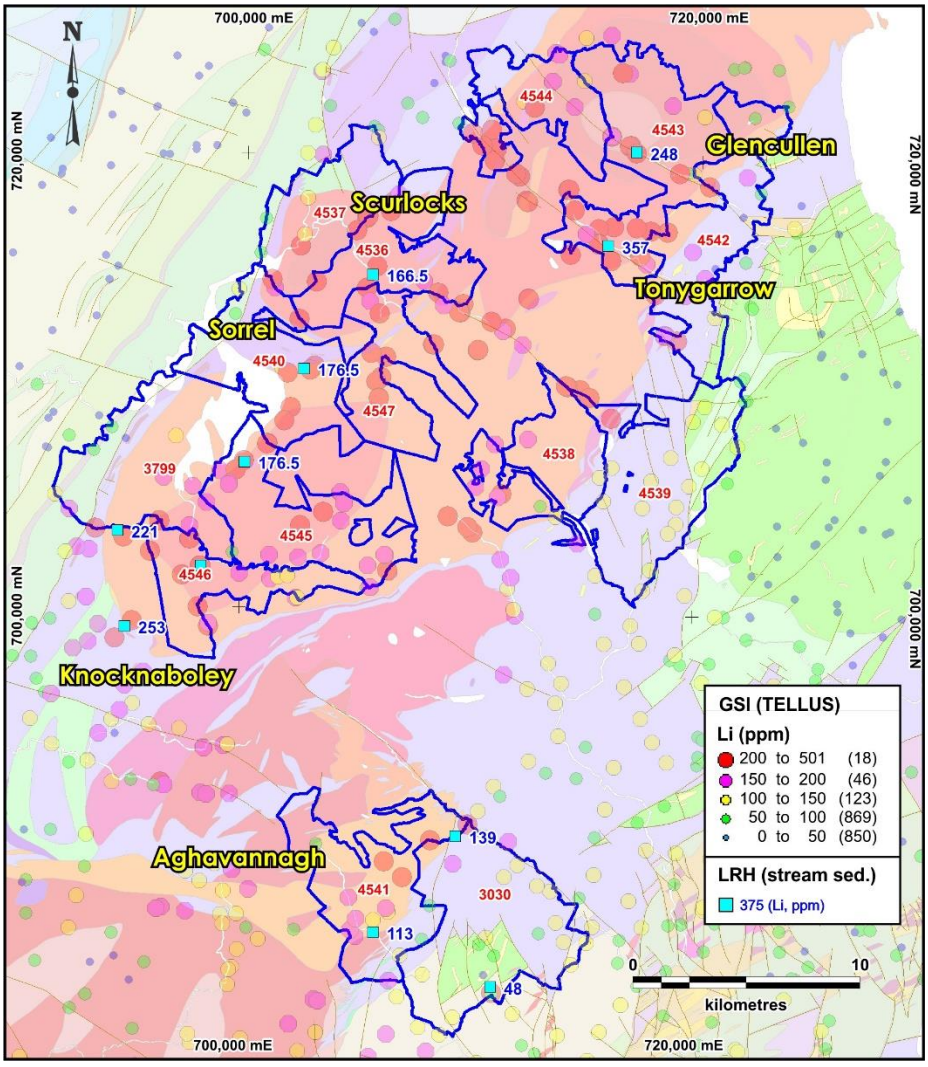
A limited stream sediment sampling program was performed in 2019 to verify the results from earlier programs carried out in SE Ireland by the Geological Survey of Ireland (GSI) in 1980 and 1990

(see Section 6 - History). It should be noted that LRH's work was performed prior to the re-analysis in 2020 of the historic stream sediment samples held by the GSI. A total of 11 samples were collected in eight of the most prospective PLAs to determine if new higher precision geochemical techniques could help identify lithium-bearing minerals in the stream sediments (Table 9-3, Figure 9-3)

***Table 9-3:*** *Stream sediment samples collected in each prospecting licence*

| PLA | County | Area (km²) | Nr. of collected samples |
|---|---|---|---|
| 3030 | Wicklow | 44.95 | 1 |
| 3285 | Wicklow | 40.59 | 2 |
| 4540 | Wicklow | 31.07 | 1 |
| 4541 | Wicklow | 33.71 | 2 |
| 4545 | Wicklow | 32.53 | 1 |
| 4546 | Wicklow | 20.12 | 1 |
| 4536 | Wicklow | 25.58 | 1 |
| 4543 | Dublin/Wicklow | 40.65 | 2 |

***Figure 9-3:*** *Location of verification stream sediment samples from the 2019 work program. 2020 TELLUS samples are shown in the background.*



Geochemical analyses were performed on the samples using an ICP multielement suite (ME MS61L) for 48 elements along with MS61L-REE for a further 12 element suite. LCT pegmatites are typically enriched in Li, Cs, Ta, Be, Mn and Sn and are depleted in Ca and Zr (Barros, et al., 2015). The results of the key elements are presented in Table 9-4.

***Table 9-4:*** *Selected analytical results for the orientation stream sediment survey.*

| | | | LRH | | | | | TELLUS | Variation |
|---|---|---|---|---|---|---|---|---|---|
| SAMPLE | PLA | Sample Description | Be (ppm) | Cs (ppm) | Li (ppm) | Mn (ppm) | Sn (ppm) | Li (ppm) | Li (ppm) |
| AES44001 | 3030 | Possible qtz vein, peg, altered schist | 2.02 | 5.02 | 48 | 1365 | 2.65 | 189 | 141 |
| AES44002 | 4541 | Foliated granite, biotite-rich schists, vein quartz, peg. clasts | 8.28 | 20.00 | 139 | 1755 | 10.9 | 187 | 48 |
| AES44004 | 3285 | - | 15.65 | 20.40 | 221 | 1730 | 9.85 | 213 | -8 |
| AES44005 | 3285 | Mostly granite, qtz - vein, possible pegmatite and aplite | 24.00 | 33.10 | 253 | 2110 | 16.8 | 245 | -8 |
| AES44006 | 4546 | Granite, possible aplite, qtz | 12.00 | 21.30 | 238 | 1910 | 11.7 | 166 | -72 |
| AES44007 | 4545 | Granite, minor qtz | 16.25 | 20.30 | 176.5 | 2240 | 8.41 | 172 | -4.5 |
| AES44008 | 4540 | Granite, qtz, potential peg, andalusite schist | 11.30 | 13.95 | 176.5 | 2900 | 6.99 | 187 | 10.5 |
| AES44010 | 4536 | Granite, qtz veins, possible peg | 12.15 | 19.45 | 166.5 | 1280 | 9.63 | 173 | 6.5 |
| AES44011 | 4541 | Granite, schist, sheared granite, sheared schist, possible peg | 13.95 | 13.00 | 113 | 3280 | 7.92 | 108 | -5 |
| AES44012 | 4543 | Granite | 15.35 | 26.00 | 248 | 4510 | 15.15 | 235 | -13 |
| AES44013 | 4543 | Granite | 26.50 | 41.30 | 357 | 4090 | 25.7 | 168 | -189 |
| | | **Mean** | 14.31 | 21.26 | 194.2 | 2470 | 11.43 | 186 | |

Lithium concentrations range from 48 to 357 ppm, with an average content of 194.2 ppm. Table 9- 4 also shows the lithium concentration, and comparison, of the GSI/TELLUS stream sediment located proximal to the LRH samples. The concentrations are generally in good agreement and confirm the validity of the sampling method.

## 9.5 Shallow Soil Sampling

LRH designed a shallow soil sampling programme to test the effectiveness of using soil geochemistry at various depth horizons to target pegmatite zones. The southern part of PLA 4541 (Aghavannagh) was selected for this programme, since spodumene-bearing pegmatite float was found in the area by LRH prospecting in 2018. Geological mapping indicates the test area to be at the contact between a granite and the metasediment rocks that host pegmatites. Detailed float prospecting was completed prior to the sampling to map the trend of the float and help constrain a potential bedrock source.

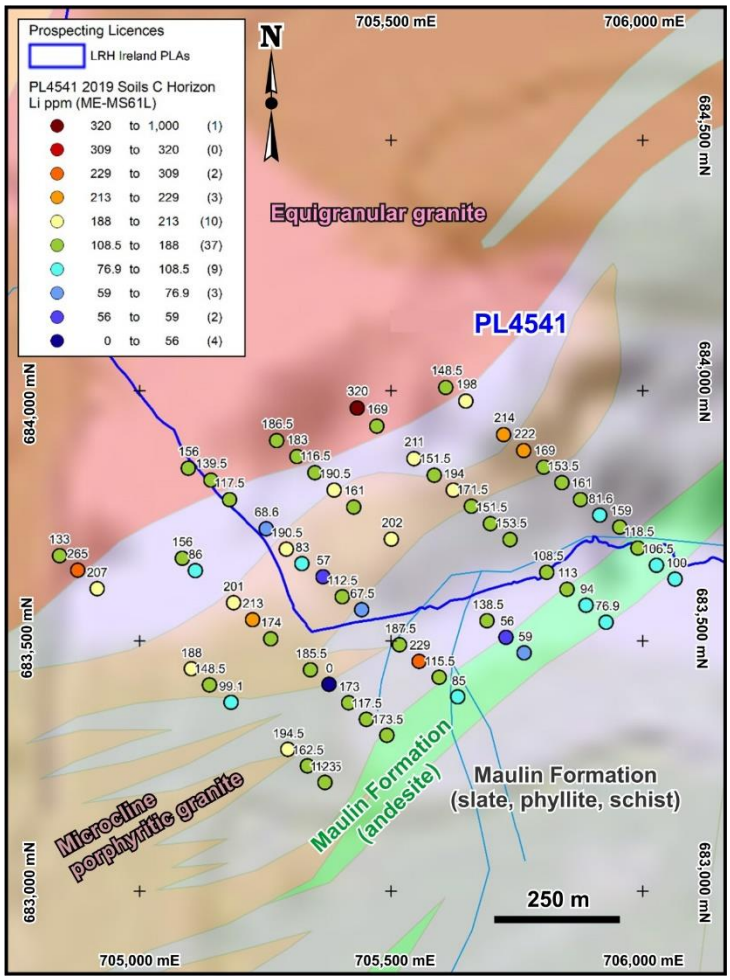
The soil sampling grid comprised of six parallel lines with a 100 m spacing with a NW – SE orientation. The direction was chosen to be perpendicular to the inferred granite/metasediments contact and possible trend of the pegmatite zone. Sample spacing was 50 m, and were collected at the A, B and C horizons to investigate the distribution of various element through the soil.

A total of 87 sites were sampled, with 87 A-horizon samples, 78 B-horizon samples and 64 C-horizon collected. Some B- and C-horizons could not be collected due to shallow bedrock or the presence of large boulders. The samples were analysed using a variety of sampling techniques depending

on the horizon: Ionic leach for A-horizon, and multi-element ICPMS for the B- and C-horizons. **Figure 9-4** shows the lithium concentration of C-horizon samples.

LRH geologists concluded that the lithium concentration in the soil horizons was a reasonable vectoring tool concealed mineralization and the underlying geology, but noted that the lack of samples in the B- and C-horizons could be problematic to give good coverage.

***Figure 9-4:*** *Assay results (Li) for C horizon soil samples (PLA 4541) shown with interpreted underlying geology.*



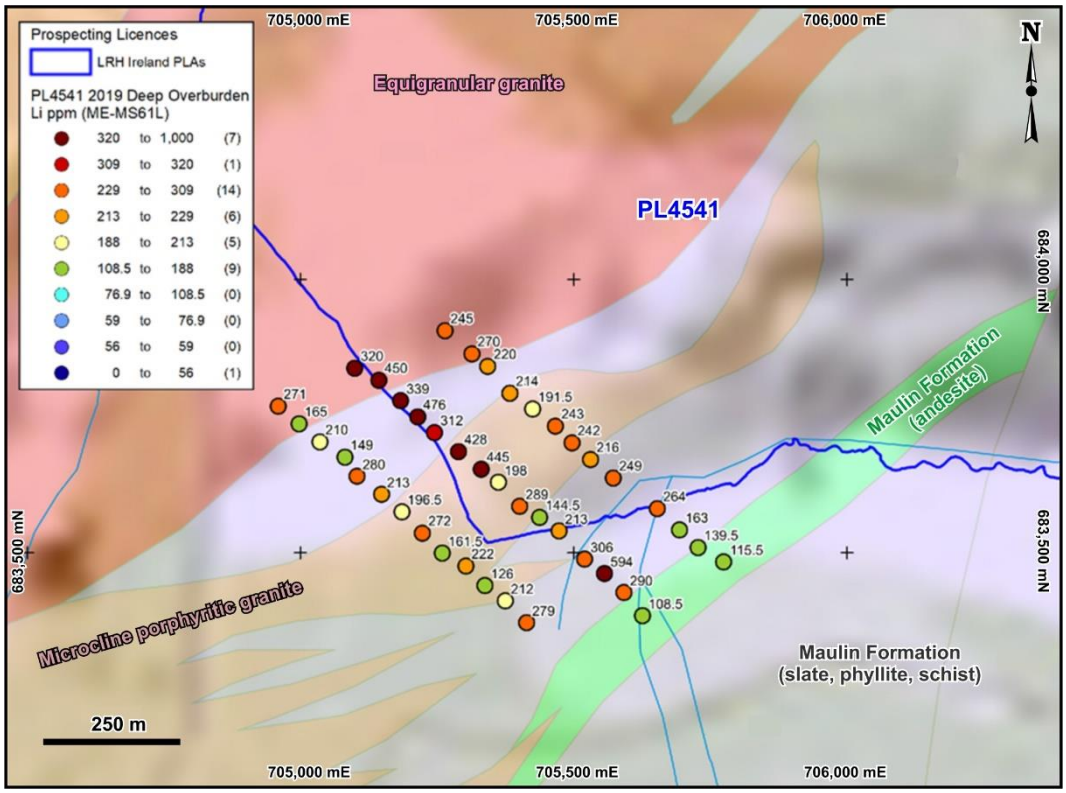

*Source: Archibald (2021) after LRH*

## 9.6 Deep Overburden Sampling

A deep overburden orientation sampling programme was carried out over the same primary target at Aghavannagh on PLA 4541 and utilised the same grid sampling points as the shallow soil samples (**Figure 9-4).** The survey was designed to test the effectiveness of using the technique in areas of deep till cover and forestry, and at various depths to target lithium-bearing pegmatite zones.

Three NW-SE trending lines with a line spacing of 150 m, and sample spacing of 50 m were designed to target the same segment of the granite - metasediment contact targeted by the shallow soil sampling programme. The samples were collected using a Cobra percussion drill to push sampling rods to depths greater than that possible by hand with a shallow soil auger.

***Figure 9-5:*** *Map showing the basal sample lithium concentrations.*




*Source: Archibald (2021) after LRH*

The assay results show strongly anomalous lithium concentrations, up to 594 ppm, in the southeast part of the middle line. There are also anomalous values in the northern part of the middle line with concentrations between 312 and 476 ppm Li. This is a clear target for follow up as it lies within the Maulin Formation in contact with the granites, and is the likely concealed source of the spodumene-bearing pegmatite float found in the area.

## Mineral Liberation Analyser-Scanning Electron Microscope (MLA-SEM) analysis

A 3 kg sample of till was collected from a prospecting pit close to where the 1.78% $Li_2O$ float sample was collected (corresponding to the sample containing 144.5 ppm Li on **Figure 9-5**). The sample was shipped to Memorial University of Newfoundland for preparation and analysis by Terra Rosseta Inc. The material was separated by sieving to produce a 125-180 µm fraction, which yielded grains that were subsequently mounted in epoxy, polished and coated prior to SEM analysis.

The following minerals were identified during the study: small amounts of apatite; Nb-rich rutile; zircon without radioactive inclusions; spessartine (garnet); and beryl. The presence of beryl and Nb-rich rutile is typical of LCT pegmatites. A single, small (< 10 µm), solitary gold grain was also observed.

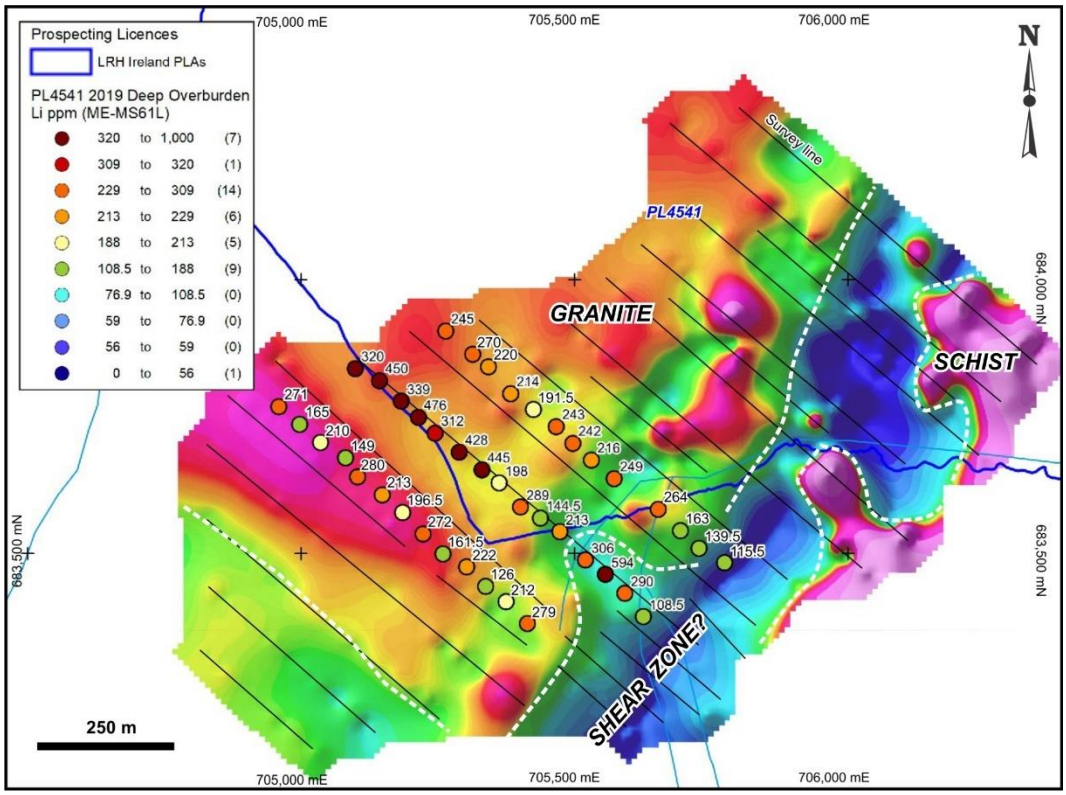
## 9.7 Ground Magnetic Survey

A ground magnetics orientation programme was performed in the Aghavannagh prospect on PLA 4541 in June 2019. This is the same locations as the shallow soil and deep overburden soil sampling programs. The geophysical survey was designed to test the effectiveness of ground magnetics in identifying the granite-country rock contact, and the presence of pegmatite bodies.

Survey coverage consisted of approximately 12,200 m of ground magnetic survey data. The line spacing was generally 100 metres, and reduced to 50 m for five short infill lines, and oriented at 315° (NW), which was designed to be perpendicular to the main geological structures. The survey was carried out by Aurum Exploration Services using a ground roving magnetometer (Geometrics G-858 caesium vapor gradiometer) and a base magnetometer (Geometrics G-857 proton precession magnetometer). The magnetic susceptibility of the outcropping rocks in the survey area was measured with a KT10 magnetic susceptibility meter.

The results of the survey are displayed in **Figure 9-6** and show that the interpreted contact between the granite and Maulin Formation schist is characterized by a low magnetic intensity. This has been interpreted to be a sheared contact between the two lithologies. A parallel magnetic low feature could indicate another sheared contact, or alteration associated with the interaction between the granite and country rock.

***Figure 9-6:*** *Interpreted ground magnetic survey (total magnetic intensity) with basal deep overburden.*




*Source: Archibald (2021) after LRH*

# 10 DRILLING

LRH Resources have not performed any drilling on the Leinster Property and there is no record of any drilling having previously taken place for lithium mineralization.

# 11 SAMPLE PREPARATION, ANALYSES & SECURITY

Three types of samples were collected by geologists from Aurum Exploration Services on behalf of the property owners: Shallow soil, deep overburden, stream sediment samples, prospecting (lithogeochemical) samples of bedrock and float.

## 11.1 Lithogeochemical Prospecting Samples

Samples (typically 1-2 kg) were collected from outcrops and mineralized float and placed directly into clear plastic bags with sample tickets before being sealed by plastic cable ties. The relevant sample information was recorded (location and sample type) and a sample number written on the outside of the bag in permanent marker. Either a blank or suitable standard was inserted approximately every 20 samples. Duplicate samples were typical not taken. The samples were general taken to the LRH office prior to dispatch to the ALS geochemical laboratory, in Loughrea, Co. Galway by a courier or LRH staff, where the chain of custody was passed to ALS Minerals. ALS (Loughrea) has ISO/IEC 17025:2005 Quality Management System accreditation.

At the laboratory all samples were dried, weighed, sieved to -180 µm (80 mesh), and pulverized to 75 µm. A 0.2 g aliquot was analyzed by *aqua regia* digestion with an ICP-AES finish (2016 samples; ALS lab code ME-ICP41), or by HF digestion and sodium peroxide fusion with an MS finish (2018 and 2019 samples; ALS lab code ME-MS89L). The ME-ICP41 assay method is not optimised for lithium analysis due to incomplete digestion. The ME-MS89L assay method is the principal assay method for lithium and has a detection range from 2 to 25,000 ppm Li. No samples exceeded the ME-MS89L method upper detection limit of 25,000 ppm Li, so no additional testing was required.

## 11.2 Stream Sediment Samples

Samples were collected from material recovered from active streams and screened using two nylon sieves and collected into a plastic gold pan. Typically, 1.5 to 2 kg of material was collected and transferred directly into clear plastic bags and the relevant sample information recorded (location, sample type, sample description) and a sample number was written on the outside of each bag and a sample ticket was inserted into each bag, which were then sealed using a plastic cable tie. One standard and one blank were inserted into the single batch sent to the laboratory. The samples were couriered to the ALS (Loughrea, Co. Galway), where the chain of custody was passed to ALS Minerals.

At the laboratory all samples were dried, weighed, sieved to -180 µm (80 mesh), and pulverized to 75 µm. A 0.25 g aliquot was analysed by a 48 multi-element technique (ME-MS61L), and an additional 12-element technique (ME-MS61L-REE) specifically for LCT pegmatite exploration. The ME-MS61L assay method has a detection range from 0.02 to 10,000 ppm Li, 0.01 to 500 ppm Cs, 0.01 to 500 ppm Ta, 0.02 to 1,000 ppm Be. No samples exceeded the upper detection limits.

### 11.3 Soil and Deep Overburden Samples

Samples were collected from a variety of depths in these programs: A-, B-, and C-horizons for the shallow soils using a hand auger, and the sample closest to bedrock for the deep overburden (DOB) sampling using a Cobra percussion drill. The samples were placed in plastic sample bags together with a sample ticket, before being sealed by a plastic cable tie. A lithium standard and a duplicate sample was included in each batch sent to the laboratory. The samples were shipped directly to ALS (Loughrea, Co. Galway), where the chain of custody was passed to ALS.

At the laboratory all samples were dried, weighed, sieved to -180 µm (80 mesh), and pulverized to 75 µm. A 50 g aliquot of the A-horizon was analyzed by Ionic Leach™ using sodium cyanide (MS23-PbIS™), which has a 0.2 ppb lower detection limit for lithium. A 0.25 g aliquot of B- and C-horizon soil and DOB samples were analyses using the ALS ME-MS61L-REE geochemistry package. The assay method has a detection range from 0.2 to 10,000 ppm Li. All samples analysed were within the detection range, so no additional testing was required.

The blank and standard assay results were monitored to ensure the values were within permissible levels. No blank samples contained elevated levels of lithium, and the lithium standards varied within acceptable tolerances. Had either the blank or standard failed, LRH would have asked the assay laboratories to rerun the sample batch.

The author is of the opinion that industry best practices have been followed with regard to sampling, security, and analytical procedures. However, any additional work will likely require an increase in the number of inserted duplicates, blanks and standards. It is also recommended that a variety of standards are used to cover the range of the likely lithium mineralization and to better identify any weaknesses in the assay lab's analytical methods.

## 12 DATA VERIFICATION

Due to the ongoing COVID-19 pandemic the author was unable to visit the Property to verify the geology of the area or to observe the field relationship of the mineralization. However, the geology of the Wicklow Mountains is extremely well mapped by the Irish Geological Survey, and numerous university researchers. All geological information (maps, historic reports, published papers, assay certificates, and samples descriptions) and licence documentation were made free available to the author for review. The author held technical discussions with the LRH Resources technical team including EurGeol Vaughan Williams, PGeo, (Director).

Comprehensive internal LRH Resources work reports were also reviewed. These reports include details of all of the due diligence sampling, and were submitted to the Exploration and Mining Division (EMD), a line division of the Department of Communications, Climate Action and Environment.

The author is satisfied that all of the information presented to him was true and accurate, and that samples collected by LRH Resources generally followed industry best practices.

# 13 MINERAL PROCESSING & METALLURGICAL TESTING

This is an early-stage exploration project and to date no metallurgical testing has been undertaken.

# 14 MINERAL RESOURCE ESTIMATES

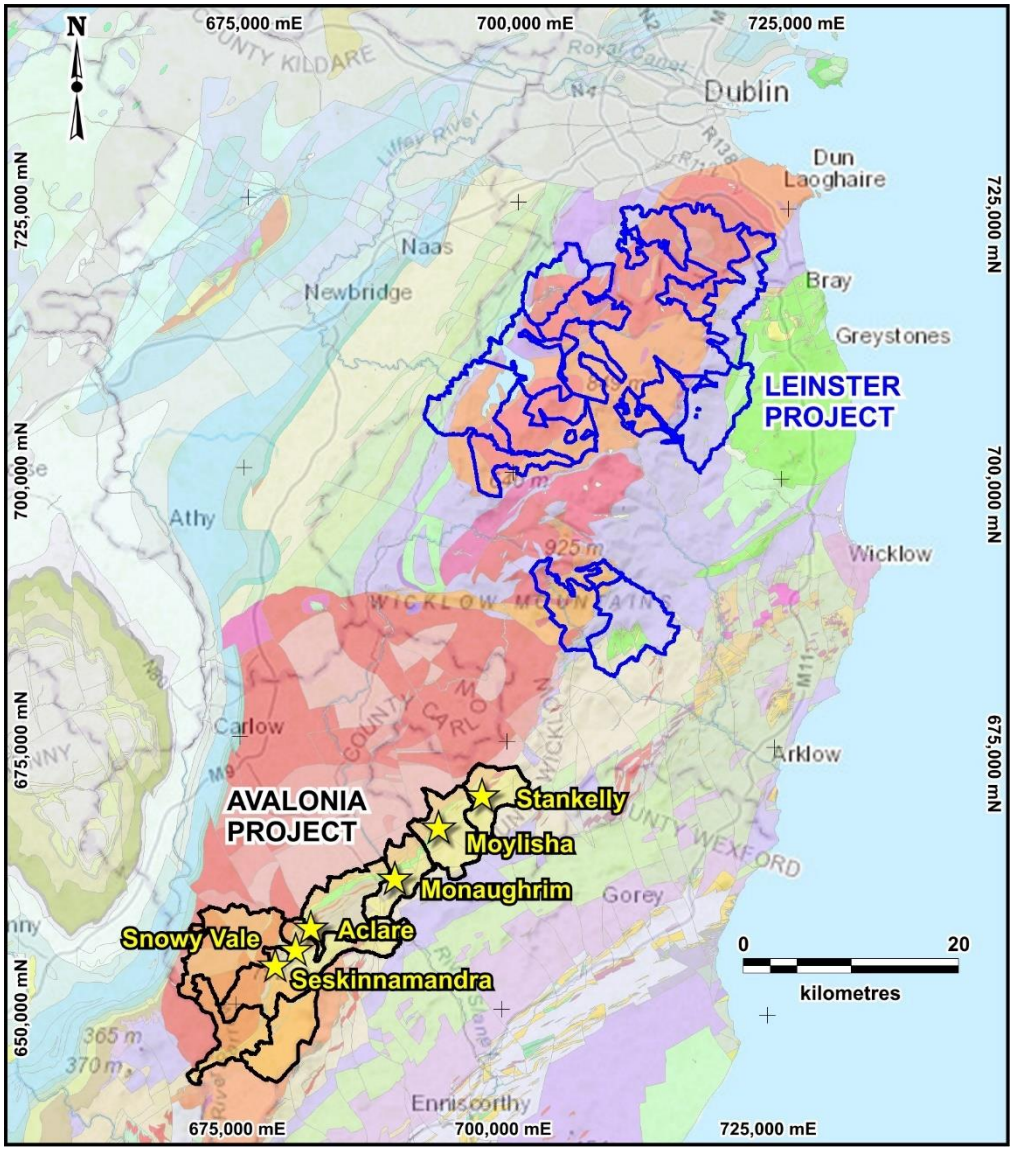
This section is not applicable at this time.

# 23 ADJACENT PROPERTIES

**Avalonia Project**

The Avalonia Project covers an area of 297 sq. km and it is located 80 km south of Dublin and a minimum of 15 km from LRH's southernmost prospecting licence. Ownership is through a joint venture company (Blackstairs Lithium), owned 55% by Ganfeng Lithium and 45% by International Lithium Corporation (TSX.V:ILC). The primary target in the project area is spodumene bearing lithium pegmatites emplaced along the East Carlow Deformation Zone during the intrusion of the Leinster Batholith. At least 19 significant lithium pegmatite occurrences have been discovered within the project area to date, primarily as boulder trains due to the paucity of outcrop. Only six occurrences are known from outcrop or subcrop: Stranakelly, Moylisha, Monaughrim, Aclare, Snowy Vale and Seskinnamadra (**Figure 7-1**).

***Figure 23-1:*** *Location of the adjacent Avalonia Project (Blackstairs Lithium).*




Source: Archibald (2021)

The pegmatite bodies are up to 20 m thick at Aclare, where multiple anastomosing and possibly *en echelon* veins can be traced along NE-SW strike for up to 400 m, and projected significantly further based on historical deep overburden sampling. At Moylish, 15 km to the northeast, the veins attain thickness up to 12 m, with similar grades to Aclare. Significant drill results from Aclare and Moylish prospects are presented in Table 23-1 (International Lithium press release, 2019):

***Table 23-1:*** *Significant drilling results from Aclare (ACL) and Moylish (MOY).*

| Hole ID | From (m) | To (m) | Length* (m) | $Li_2O$% |
|---|---|---|---|---|
| ACL13-02 | 31.3 | 42.05 | 10.75 | 1.26 |
| ACL13-02 | 45.55 | 48.3 | 2.75 | 0.6 |
| ACL13-04 | 30.55 | 53.86 | 23.31 | 2.23 |
| including | 32.8 | 43.2 | 10.4 | 2.9 |
| including | 36 | 42 | 6 | 3.43 |
| and including | 45.85 | 52 | 6.15 | 2.92 |
| ACL13-05 | 40.9 | 50.3 | 9.4 | 1.34 |
| including | 40.9 | 43.95 | 3.05 | 2.55 |
| ACL16-09 | 46.1 | 48.45 | 2.35 | 1.58 |
| including | 46.1 | 47.03 | 0.93 | 2.99 |
| ACL16-15 | 68.18 | 78.83 | 10.65 | 1.07 |
| including | 70.87 | 75.97 | 5.1 | 1.62 |
| including | 70.87 | 72.12 | 1.25 | 2.5 |
| ACL16-22 | 85.23 | 89.85 | 4.62 | 2.33 |
| including | 86.26 | 87.93 | 1.67 | 3.29 |
| MOY18-11 | 86.27 | 98.56 | 12.29 | 1.03 |
| MOY18-11 | 100.32 | 102.2 | 1.88 | 1.27 |
| MOY18-11 | 105.45 | 106.85 | 1.4 | 1.49 |
| MOY18-11 | 121.42 | 124.7 | 3.28 | 1.04 |
| MOY18-17 | 44.34 | 47.48 | 3.14 | 2.08 |
| MOY18-17 | 50.7 | 51.85 | 1.15 | 1.11 |
| MOY18-17 | 53.15 | 54.16 | 1.01 | 1.18 |

*Reported widths are drill intercept widths and do not represent true thickness. True thickness is not known at this time.

**Cautionary statement: Investors are cautioned that the potential quantities indicated above, have not been verified by the author, and are not necessarily indicative of the mineralization on the Leinster Property; it has been provided only for illustration purposes. At this time, there is insufficient public information to verify the information.**

# 24 OTHER RELEVANT DATA & INFORMATION

There is no other relevant information with respect to the Property as of the effective date of this report.

# 25 INTERPRETATIONS & CONCLUSIONS

The Leinster Property has previously undergone limited explored for base metals, gold and tantalum, using a variety of exploration techniques, by publicly listed companies and government agencies. LRH Resources is conducting the first exploration focused on identifying spodumene (Li-bearing) pegmatites. Government funded regional stream sediment sampling combined with LRH follow-up lithogeochemical (float and bedrock) sampling have been relatively successful in identifying areas containing spodumene pegmatite float. The presence of glacial overburden and means that shallow soil sampling is not the best method to identify lithium targets, and deep overburden sampling is recommended. Ground magnetic surveys appear to identify the granite-metasediment contact, and the presence of deformation zones that are favourable for pegmatite enrichment.

The PLAs comprising the Leinster Property show features that are considered important to the exploration for spodumene (Li-Ce-Ta) pegmatites, including:

- Underlain by S-type granites formed in a convergent plate setting (all PLA)
- Intrusive rocks were emplaced into country at upper greenschist facies
- Development of shear/deformation zones on the granite margins
- Presence of spodumene-bearing float or Li-enriched aplites (all permits)
- Surficial lithium stream geochemical anomalies (all permits)

The mineralized float found on the Leinster Property indicates that it is highly likely that bedrock spodumene pegmatites are present. The Aghavannagh prospect is a direct analogue to mineralization noted along strike on the Avalonia Project, and fieldwork (mineralogical, geochemical, and geophysical) performed by LRH Resources confirms the prospectivity. Other prospects on the Property (Sorrel, Scurlocks, and Tonygarrow) have exploration merit and require immediate follow-up to identify the bedrock source of the Li-bearing float.

The author is of the opinion that the present study has met the original objectives and provides the basis for the Leinster Property to be acquired by Technology Minerals Limited.

The Property is an early-stage exploration project ("greenfield") and the significant risk for this project is the same as all other early-stage exploration properties in that there may be no economic mineral resource. As of the effective date of this report the author is not aware of any other significant risks that could affect, access, mineral title, ability to obtain permits, ability to undertake exploration, or the general economic viability of the property.

# 26 RECOMMENDATIONS

Most of the Property remains to be fully investigated due to the limited amount of exploration performed thus far, and the extensive and pervasive glacial overburden development that has obscured the bedrock geology. Several target areas have been identified based on the regional GSI (TELLUS) stream sediment sampling program geochemical anomalies, float prospecting, combined with the interpretation ground geophysics.

Moving forward, it is recommended that exploration of the Leinster Property should include the following two phases of activities.

**Phase 1**

- Remote sensing structure studies, consisting of structural and hyperspectral analysis
- Deep overburden (power auger) geochemistry program to cover most of the prospective targets on each PLA
- Perform ground geophysics (magnetic and resistivity) to identify igneous / metasedimentary contacts and potential shear / deformation zones
- General float/outcrop prospecting and geological mapping on other potentially anomalous areas
- Conduct additional mineralogical/petrographic studies based on new occurrences or targets
- Conducted shallow diamond drilling at Aghavannagh to identify the source of the spodumene pegmatite float and test the geophysical and geochemical targets.

The expected total cost for Phase 1 is €269,500 / £235,465.

**Phase 2**

If warranted, an additional diamond drilling program on the most promising auger geochemistry targets will be undertaken. If warranted the total cost for Phase 2 drilling (totaling 500 m) is €132,000 / £114,840.

In total, the cost of this work is expected to be approximately €401,500 / £349,305. A summary of the expenditure break-down is presented in Table 26-1.

*Table 26-1: Summary of Proposed Expenditure*

**PHASE I**

| Work Programme | Cost (€) | Cost (£) |
|---|---|---|
| Project management | 50,000 | 43,500 |
| Remote sensing study (Alteration/Structure) | 20,000 | 17,400 |
| General prospecting | 15,000 | 13,050 |
| Deep overburden sampling | 50,000 | 43,500 |
| Ground geophysics (magnetic / resistivity) | 25,000 | 21,750 |
| Petrographic study | 5,000 | 4,350 |
| Geological mapping | 20,000 | 17,400 |
| Diamond drilling (300 m) | 60,000 | 52,200 |
| **Sub-Total** | **245,000** | **213,150** |
| Contingency (10%) | 24,500 | 21,315 |
| **Total** | **269,500** | **234,465** |

**PHASE II**

| Work Programme | Cost (€) | Cost (£) |
|---|---|---|
| Project management | 20,000 | 17,400 |
| Diamond drilling (500 m) | 100,000 | 87,000 |
| **Sub-Total** | **120,000** | **104,400** |
| Contingency (10%) | 12,000 | 10,440 |
| **Total** | **132,000** | **114,840** |

| | | |
|---|---|---|
| **Total Phase I & Phase II** (with 10% contingency) | **€ 401,500** | **£ 349,305** |

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# Certificate of Qualified Person

I, Sandy M. Archibald, P. Geo., am a consulting geologist at Aurum Exploration Services (Canada) Limited, Durham Corporate Centre, 105 Consumers Drive, Whitby, Ontario, Canada, as an author of this report entitled "NI 43-101 Technical Report on the Leinster Property, Republic of Ireland" dated April 30, 2021 prepared for Technology Minerals Limited (the "Issuer"), do hereby certify that:

1. I am a Principal Consultant Geologist with Aurum Exploration Services (Canada) Limited.

2. I graduated with a B.Sc. (Hons) degree in Geology from University of Glasgow in 1992, was awarded an M.Sc. degree in Geology from Memorial University of Newfoundland in 1995, and a Ph.D. in Economic Geology from McGill University, Montreal, Canada in 2002.

3. This certificate applies to the technical report entitled "NI 43-101 Technical Report on the Leinster Property, Republic of Ireland" dated April 30, 2021 ("Technical Report") prepared for the Issuer.

4. I have been employed in my profession by Aurum Exploration Services since completing my final postgraduate degree in 2002. My relevant experience includes designing and implementing mineral exploration programs for a variety of commodities and deposit types, including pegmatite-hosted and intrusion related mineral systems (UK, Sweden, Czech Republic, Mauritania, and Canada).

5. I am a member of the European Federation of Geologists (Title No. 873), I am a Professional Geologist (Title No. 193) associated with the Institute of Geologists of Ireland, and a Professional Geologist (Title No. 2860) associated with Professional Geoscientists Ontario. I am also a Fellow of the Society of Economic Geologists, and a Member of the Society for Geology Applied to Mineral Deposits.

6. I have read the definitions of "Qualified Person" set out in in National Instrument 43-101 – Standards of Disclosure for Mineral Projects ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "Qualified Person" for the purposes of NI 43-101.

7. Due to travel restrictions related to COVID-19, I have been unable to visit the Property.

8. I am taking responsibility for all sections of the Technical Report.

9. I am independent of the Issuer applying all the tests in Section 1.5 of NI 43-101.

10. I am independent of the Vendor and the property that is the subject of the Technical Report.

11. I have had no prior involvement with the property that is the subject of the Technical Report.

12. I have read NI 43-101 and NI 43-101F1 and the Technical Report has been prepared in compliance with that instrument and form.

13. As of the effective date of the Technical Report, to the best of my knowledge, information and belief, the Technical Report contains all scientific and technical information that is required to be disclosed to make the Technical Report not misleading.

"Signed Sandy M. Archibald"

EurGeol Dr. Sandy M. Archibald, P.Geo.

DATED this 30 day of April, 2021.