

**AGRICULTURAL QUALITY  
OF LAND OFF CROWN STREET  
ANGLESEY**

Report 2020/1

8<sup>th</sup> July, 2022

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OF LAND OFF CROWN STREET, ANGLESEY**

L Thomas, MSc, MISoilSci

Report 2020/1  
Land Research Associates Ltd  
Lockington Hall,  
Lockington,  
Derby  
DE74 2RH  
[www.lra.co.uk](http://www.lra.co.uk)

8<sup>th</sup> July, 2022

## **SUMMARY**

An agricultural land quality survey has been undertaken of 0.9 ha of land off Crown Street, Gwalchmai, Anglesey, in June 2022.

The land has deep permeable loamy soils with slight drainage impedance, giving land of subgrade 3a agricultural quality, limited by wetness/workability constraints.

## 1.0 Introduction

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- 1.1 This report provides information on the agricultural quality of 0.9 ha of land off Crown Street, Gwalchmai, Anglesey. The report is based on a survey of the land in June 2022.

### **SITE ENVIRONMENT**

- 1.2 The site comprises two grassland fields, cut for hay at the time of survey. The site is bordered to the north and west by Crown Street, to the south by residential properties and a park, and to the east by adjoining agricultural land. The site is level, with an average elevation of approximately 75 m AOD.

### **PUBLISHED INFORMATION**

- 1.3 1:50,000 scale BGS information records the geology of the land as Central Anglesey Shear Zone and Berw Shear Zone schist and mica (undifferentiated) overlain by superficial deposits of glacial till.
- 1.4 The National Soil Map (published at 1:250,000 scale) records the land as East Keswick 1 Association: typically deep well drained fine loamy soils, and similar soils with slowly permeable subsoils and slight seasonal waterlogging <sup>1</sup>.
- 1.5 The Predictive ALC Map for Wales shows the land as grade 2 agricultural quality.

<sup>1</sup>Rudelforth, C. C., *et al.*, 1984. *Soils and their use in Wales*. Soil survey of England and Wales, Bulletin No. 11, Harpenden.

## 2.0 Soils

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- 2.1 A soils and agricultural quality survey was carried out in June 2022 in accordance with MAFF (1988) Agricultural Land Classification guidelines<sup>2</sup>. It was based on observations at intersects of a 50 m grid, giving a density of four observations per hectare. During the survey, soils were examined by hand augerings to a maximum depth of 1.0 m. A log of the sampling points and a map (Map 1) showing their location is in an appendix to this report.
- 2.2 The soils within the site are deep permeable loams. They comprise medium clay loam topsoils over upper subsoils of the same texture, overlying a gleyed medium loamy lower subsoil. Although moderately porous, the lower subsoils exhibit *gleying* (greyish or pale colours with ochreous mottles), indicating seasonal waterlogging. The soils are judged to be moderately-freely draining under the moist local climate (Soil Wetness Class II).
- 2.3 An example profile is described from a pit excavation at observation point 2 (see Map 1).
- |            |  |
|------------|--|
| 0-26 cm    | Dark brown (7.5YR 3/3) medium clay loam; slightly stony with 5-10% medium subangular hardstones; well developed medium subangular blocky structure; friable; many very fine fibrous roots; 2-5% pores; smooth clear boundary to:   |
| 26-51 cm   | Brown (7.5YR 4/3) medium clay loam with 1% fine strong brown (7.5YR 5/8) and reddish yellow (7.5YR 7/8) mottles; 10-15% large tabular and medium subangular hard stones; moderately developed medium subangular blocky structure; friable; medium packing density; few fine fibrous roots; porous; smooth diffuse boundary to: |
| 51-100 cm+ | Light yellowish brown (10YR 6/4) medium clay loam with 10% reddish yellow (7.5YR 7/8) and light grey (10YR 7/2) mottles; 5% medium tabular and subangular hard stones; weakly developed medium angular blocky structure; friable; medium packing density; porous.  |

<sup>2</sup>MAFF, (1988). *Agricultural Land Classification for England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land*.

### 3.0 Agricultural land quality

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- 3.1. To assist in assessing land quality, the Ministry of Agriculture, Fisheries and Food (MAFF) developed a method for classifying agricultural land by grade according to the extent to which physical or chemical characteristics impose long-term limitations on agricultural use for food production. The MAFF ALC system classifies land into five grades numbered 1 to 5, with grade 3 divided into two subgrades (3a and 3b). The system was devised and introduced in the 1960s and revised in 1988.
- 3.2. The agricultural climate is an important factor in assessing the agricultural quality of land and has been calculated using the Climatological Data for Agricultural Land Classification<sup>3</sup>. The relevant site data for an average elevation of 75 m is given below.
- Average annual rainfall: 1002 mm
  - January-June accumulated temperature >0°C 1402 day°
  - Field capacity period (when the soils are fully replete with water) 208 days  
early Oct-early May
  - Summer moisture deficits for: wheat: 76 mm  
potatoes: 60 mm
- 3.3. The survey described in the previous section was used in conjunction with the agro-climatic data above to classify the site using the revised guidelines for ALC issued in 1988 by MAFF<sup>4</sup>. The slightly cool moist climate limits land quality to a maximum of grade 2 at this locality.

#### **SURVEY RESULTS**

- 3.4. The agricultural quality of the land is primarily determined by wetness/workability limitations. Other factors have been assessed but do not affect the land grade. Land of grade 3 has been identified.

#### **Subgrade 3a**

- 3.5. The land has medium-textured topsoils and slight drainage impedance (Soil Wetness Class II). Under the moist local climate, this combination means land access with cultivation machinery is restricted in winter and early spring, although late spring (as well as autumn) sowings are usually possible.

<sup>3</sup>Meteorological Office, (1989). *Climatological Data for Agricultural Land Classification*.

<sup>4</sup>MAFF, (1988). *Agricultural Land Classification for England and Wales: Guidelines and Criteria for Grading the Quality of Agricultural Land*.

### Grade areas

3.6. The land grade is shown on Map 2 and the area occupied is shown below.

**Table 1: Areas occupied by the different land grades**

<i>Grade/subgrade</i>	<i>Area (ha)</i>	<i>% of the land</i>
<b>Subgrade 3a</b>	0.9	100
<b>Total</b>	0.9	100

**APPENDIX**  
**DETAILS OF OBSERVATIONS**  
**MAPS**

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**Land at Crown Street: Soils and ALC survey – Details of observations at each sampling point**

Obs	Topsoil			Upper subsoil			Lower subsoil			Slope	Wetness	Agricultural quality	
No	Depth (cm)	Texture	Stones >20 mm (%)	Depth (cm)	Texture	Mottling	Depth (cm)	Texture	Mottling	(°)	Class	Grade	Main limitation
1	0-27	MCL	<5	27-41	MCL	o	41-65+ 65+	HCL Stopped on stones	xxx	0	II	3a	W
2	0-26	MCL	<5	26-51	MCL	x	51-100+	MCL	xxx	0	II	3a	W
3	0-25	MCL	5-10	25-46	MCL	o	46-55+ 55+	MCL Stopped on stones	xxx	1	II	3a	W
4	0-30	MCL	5-10	30-53	MCL	o	53-95+	MCL	xxx	1	II	3a	W

## Soil log key

### **Gley indicators<sup>1</sup>**

o	unmottled
x	1-2% ochreous mottles and brownish matrix (or a few to common root mottles (topsoils)) <sup>3</sup>
xx	>2% ochreous mottles and brownish matrix and/or dull structure faces (slightly gleyed horizon)
xxx	>2% ochreous mottles and greyish or pale matrix (gleyed horizon) or reddish matrix and >2% greyish, brownish or ochreous mottles and pale ped faces
xxxx	mottles or f-m concentrations (gleyed horizon) dominantly blueish matrix, often with some ochreous mottles (gleyed horizon)

### **Slowly permeable layers<sup>4</sup>**

a depth underlined (e.g. 50) indicates the top of a slowly permeable layer

A wavy underline (e.g. 50) indicates the top of a layer borderline to slowly permeable

<sup>1</sup>Gley indicators in accordance with Hodgson, J.M., 1997. Soil Survey Field Handbook (third edition). Soil survey technical monograph No. 5

<sup>2</sup>Texture in accordance with particle size classes in Hodgson (1997)

<sup>3</sup> Occasionally recorded in the texture box

<sup>4</sup>Permeability is estimated for auger borings and must be confirmed by full pit observations in accordance with the definitions in: Revised Guidelines for grading the quality of Agricultural Land (Maff 1988)

<sup>5</sup>Soil Wetness Classes are defined in Hodgson (1997)

<sup>7</sup>calcareous classes as defined in Hodgson (1997)

### **Texture<sup>2</sup>**

C - clay
ZC - silty clay
SC - sandy clay
CL - clay loam (H-heavy, M-medium)
ZCL - silty clay loam (H-heavy, M-medium)
SZL - sandy silt loam (F-fine, M-medium, C-coarse)
LS - loamy sand (F-fine, M-medium, C-coarse)
SL - sandy loam (F-fine, M-medium, C-coarse)
S - sand (F-fine, M-medium, C-coarse)
SCL - sandy clay loam
P - peat (H-humified, SF-semi-fibrous, F-fibrous)
LP - loamy peat; PL - peaty loam

### **Wetness Class<sup>5</sup>**

I (freely drained) to VI (very poorly drained)

<sup>6</sup>stoniness classes as defined in Hodgson (1997)

### **Limitations:**

W - wetness/workability
D - droughtiness
De - depth
F - flooding
St – stoniness
Sl – slope
T – topography/microrelief
C - Climate

### **Suffixes & prefixes:**

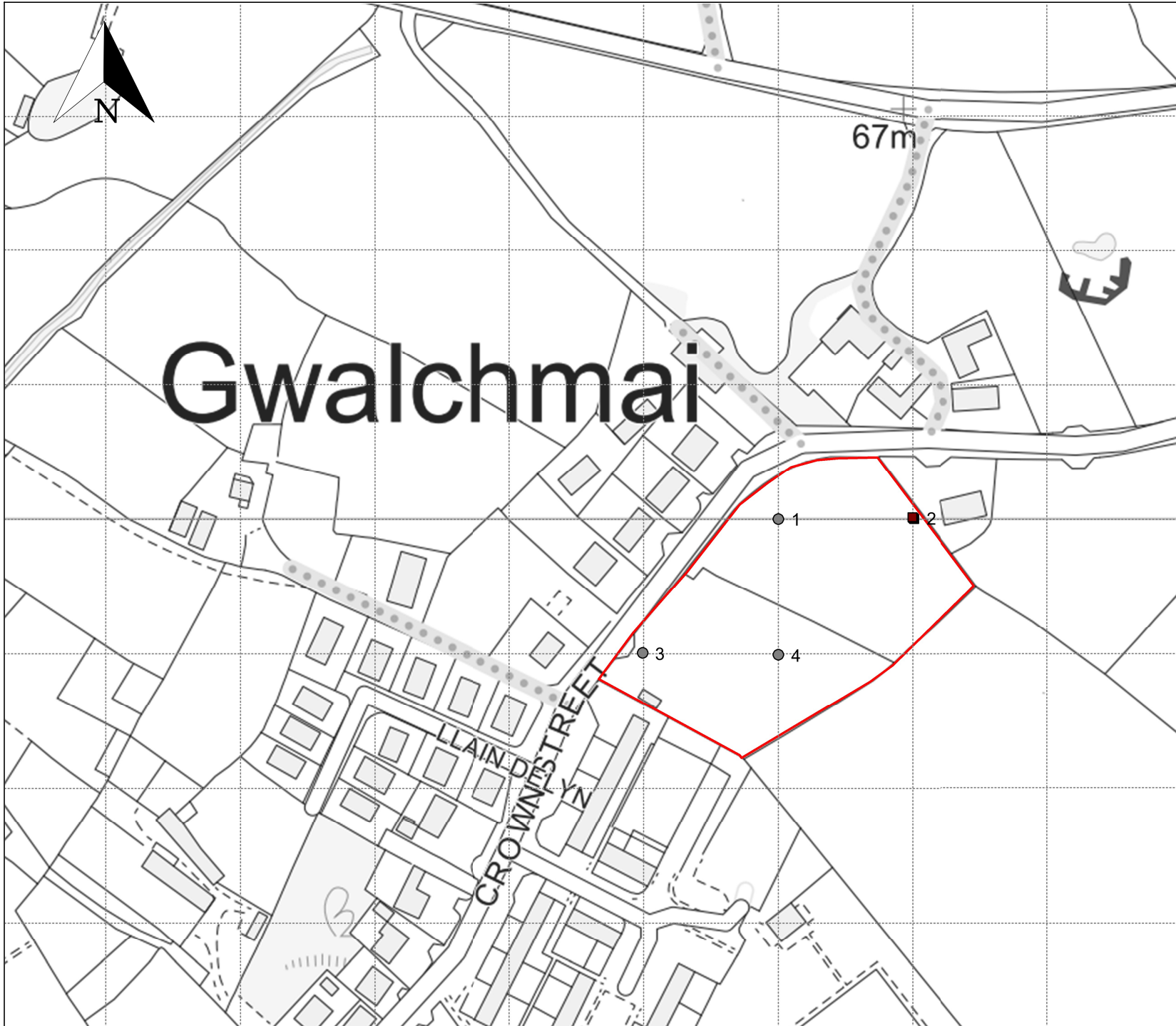
o - organic

(vsl, sl, m, v, x)st – (very slightly, slightly, moderately, very, extremely) stony<sup>6</sup>

(vsl, sl, m, v, x)  
(very slightly, slightly, moderately, very, extremely) calcareous<sup>7</sup>

### **Other abbreviations**

fmn - ferri-manganiferous concentrations  
dist - disturbed soil layer;  
R – bedrock (CH – chalk, SST – sandstone)  
LST – limestone, MST – Mudstone)  
r-reddish, gn – greenish



**KEY**

- Auger observation
- Soil/land grade description pit
- Survey area

Site:

**Land off Crown Street,  
Gwalchmai**

Map title:

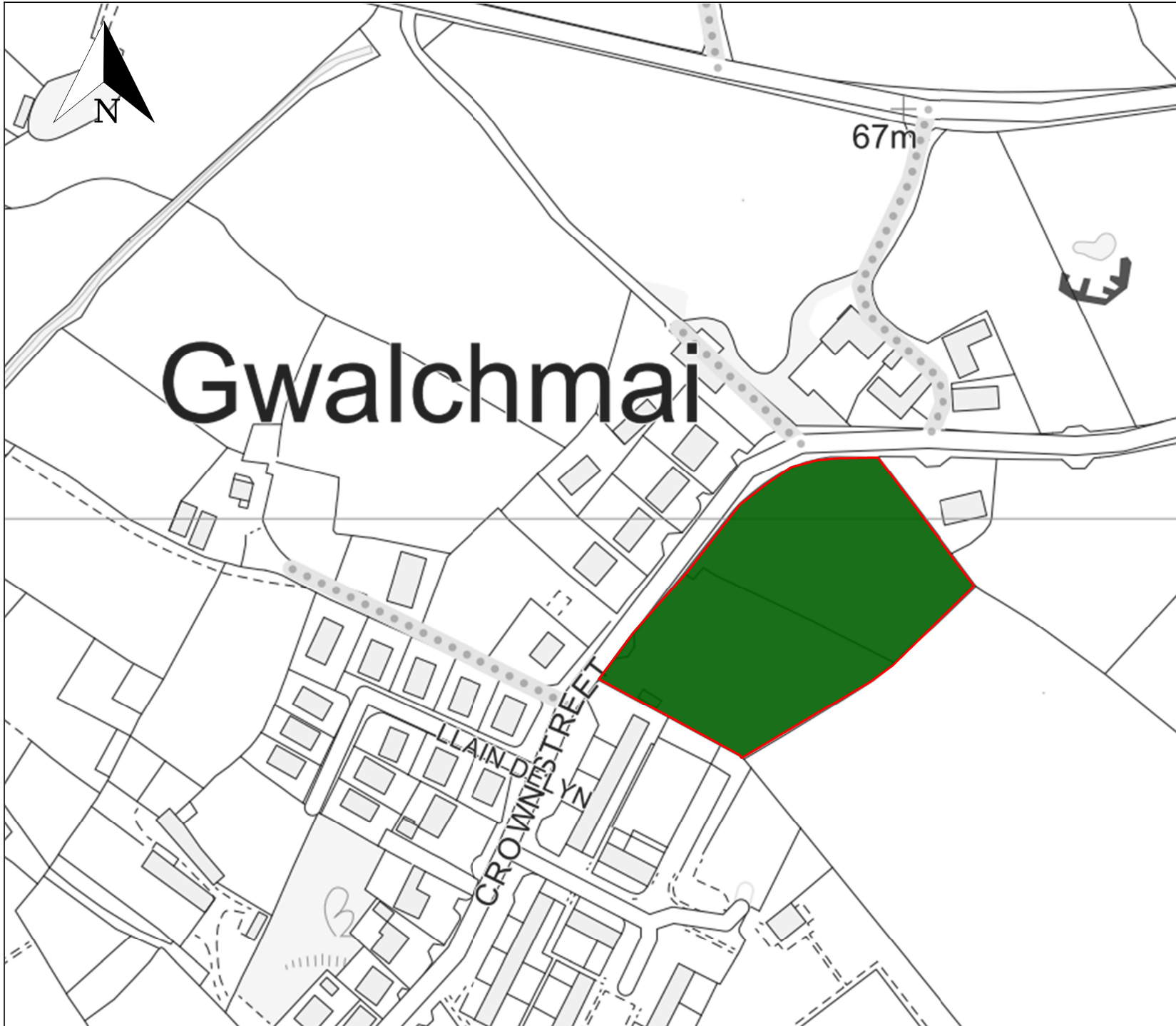
**Map 1  
Survey observations**



Land Research Associates  
Lockington Hall  
Lockington  
Derby DE74 2RH  
01509 670570


Scale: 1:2,000

Date: 08/07/2022



**KEY**

 Subgrade 3a

 Survey area

Site:

**Land off Crown Street,  
Gwalchmai**

Map title:

**Map 2  
Agricultural Land Classification**

**Land  
Research  
ASSOCIATES**

Land Research Associates  
Lockington Hall  
Lockington  
Derby DE74 2RH  
01509 670570

Scale: 1:2,000

Date: 08/07/2022