

# M60/M62/M66 Simister Island Interchange

**TR010064**

## **ENVIRONMENTAL STATEMENT APPENDICES**

### **APPENDIX 9.2 AGRICULTURAL LAND CLASSIFICATION SURVEY REPORT**

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed  
Forms and Procedure) Regulations 2009

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning  
(Applications: Prescribed Forms and  
Procedure) Regulations 2009**

**M60/M62/M66 Simister Island Interchange  
Development Consent Order 202[ ]**

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**ENVIRONMENTAL STATEMENT APPENDICES  
APPENDIX 9.2 AGRICULTURAL LAND CLASSIFICATION SURVEY  
REPORT**

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<b>Regulation Reference</b>	Regulation 5(2)(a)
<b>Planning Inspectorate Scheme Reference</b>	TR010064
<b>Application Document Reference</b>	TR010064/APP/6.3
<b>Author</b>	M60/M62/M66 Simister Island Interchange Costain Jacobs Partnership Project Team & National Highways

<b>Version</b>	<b>Date</b>	<b>Status of Version</b>
P01	April 2024	FOR DCO APPLICATION

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## Appendix 9.2 Agricultural Land Classification survey report

- 1.1.1 Agricultural Land Classification (ALC) survey assesses and classifies the agricultural potential of land. The primary objective of this survey is to determine the suitability of different areas for agricultural use, enabling informed decision-making by evaluating factors such as soil quality, drainage, slope, and climate.
- 1.1.2 The soil survey was carried out in October and December 2021, conforming to an observation density of approximately 1 per hectare, or 1 per 100m in linear sections, with topsoil and subsoil samples taken for laboratory analyses at a rate of approximately 1 per 2 hectares. A total of 41 hand auger locations and three hand pits (IDs 10, 14 and 33) were investigated across the scheme area, from which 23 topsoil samples and 23 upper subsoil samples were collected and sent for laboratory analysis. One topsoil sample and two subsoil samples were submitted for particle size distribution analysis to support hand-texturing.
- 1.1.3 The ALC report categorises land into different grades, indicating its capacity for supporting specific agricultural activities. The ALC report's specific purpose lies in guiding land-use planning, sustainable farming practices, and safeguarding valuable farmland from inappropriate development. The ALC report provides a comprehensive overview of the ALC survey's purpose, methodologies, and implications, offering insights for effective land management.





Costain Group plc



# Soil Survey at Simister Island, Manchester

Soil Survey

March 2022



## ADAS GENERAL NOTES

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**Project No.:** 1010807

**Title:** Soil Survey at Simister Island, Manchester

**Date:** 03/03/2022

**Office:** ADAS Rosemaund, Preston Wynne, Hereford HR1 3PG

**Status:** Final

**Version:** 3 (revised 25/01/2024)

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<b>Date:</b>	<u>15.03.2022</u>	<b>Date:</b>	<u>15.03.2022</u>

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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK ADAS Ltd.

## EXECUTIVE SUMMARY

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ADAS have been instructed by Costain Group plc to undertake a soil survey (including ALC) of Land at Simister Island, Manchester.

The survey has identified a range of soils, including light, medium, heavy and organic soils. Predominantly clay loams over clayey subsoils with impeded drainage were observed. Lighter, sandy textured soils were observed in patches, with occasionally sandy textured subsoils. The majority of the soils investigated form agricultural land of Subgrade 3b (70 %) quality. The main limitations to the agricultural use of the land include soil wetness or soil groundwater, particularly for medium, heavy and organic soils. In a formal ALC, land parcels would be graded to the lowest ALC grade, meaning that the land parcels would be graded to 3b/4.

The overall lack of clear definitions between the soil types, their predicted nature and evidence of disturbance, strongly suggest that these soils have been disturbed at some recent stage and not wholly reflected of the original *in situ* soils.

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# 1 INTRODUCTION

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ADAS was instructed by Costain Group plc, to produce a soils report on a site situated around Simister Island, Manchester. This report provides information on the soils and agricultural quality of Land around Simister Island, Manchester. The report is based on a survey of the land undertaken in Autumn and Winter 2021.

## 1.1 Site Environment

The survey spans a number of fields around the Simister Island junction. The land is undulating and variable in slope and aspect, particularly with embankments against the motorway. Some of the land was under agricultural production as grassland, but the majority of areas were not under any agricultural activity and were best described as scrubland. The land has an average elevation of approximately 100m AOD.

## 1.2 Agricultural Use

At the time of survey, the land under agricultural use was under permanent pasture. A significant proportion was not under any agricultural use

## 1.3 Published Information

### 1.3.1 Geology

1:50,000 scale BGS information<sup>1</sup> records the basal geology of the site as a combination of Pennine Middle Coal Measures Formation - Mudstone, Siltstone And Sandstone. (Sedimentary Bedrock formed approximately 310 to 318 million years ago in the Carboniferous Period). Manchester Marls Formation - Mudstone. (Sedimentary Bedrock formed approximately 252 to 272 million years ago in the Permian Period). Chester Formation – Sandstone (Sedimentary Bedrock formed approximately 247 to 250 million years ago in the Triassic Period). There are further superficial Devensian deposits (principally sand and gravel) of glacial origin, formed up to 2 million years ago in the Quaternary Period.

### 1.3.2 Soils

The national soils map, published at 1:250,000 scale, records the site as belonging to the Newport 1 and Brickfield 3 soil association.

The Newport soil association is described as an association of deep well drained sandy and coarse loamy soils.

The Brickfield soil association is described as an association of slowly permeable seasonally waterlogged fine loamy fine loamy over clayey and clayey soils.

No detailed post-1988 agricultural land classification is publicly available for this site.

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<sup>1</sup> British Geological Survey, 2019. *Geology of Britain viewer*. Online resource: <http://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>

## 2 METHODOLOGY

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A detailed soil survey was carried out in the Autumn/Winter 2021. The survey was based a supplied sampling scheme. During the survey soils were examined via a combination of auger borings and soil description pits to a maximum depth of 1.2 m. A log of the details of each observation point is attached to this report as Appendix 3.

Soil description pits were dug at this site. Three topsoil samples, two from the pits and one from an observation point were submitted to NRM laboratories for particle size distribution analysis by the pipette methodology to confirm site findings. The results of this analysis is are given in Section 3 and in Appendix 4.

At selected sites, topsoil and upper subsoil samples were sent for chemical analysis. The results of this analysis is are given in Section 3 and in Appendix 4.

## 3 SOILS

### 3.1 Soil Types

Soils were found to be variable across the site and locally variable. Details of individual auger borings are listed in Appendix 2 and the position of each investigation point is shown at Appendix 1. The soils were classified into light, medium, heavy and organic soils depending on the textures observed in the topsoil and upper subsoil horizon. Some predicted predominant light sandy soils were observed but less than expected. Many of the topsoils showed elevated amount of organic matter, progressing to peaty textures (referred to as organic) in areas. The predominate soil types were of medium texture (clay loam over clay loam) that in cases showed gleying in the upper subsoil soil. Heavy soils were typically clay loams over heavy clay loams/clays that all showed gleying in the upper subsoil. This mosaic of soil types across the area is consistent with the observation in a number of borings of disturbed soils and that these may not necessarily represent the original in situ soils.

Table 3.1 Soil types found in the study.

Type	Recordings	%
Light	7	16
Medium	24	55
Heavy	8	18
Organic	5	11
<b>Total</b>	<b>44</b>	<b>100</b>

### 3.2 Laboratory Analysis

Samples representative of the soil profile were taken from observations at S19 and S32. These soils were submitted to NRM Laboratories for particle size distribution (PSD) analysis. The laboratory report is given in Appendix 4. The textures are confirmed in the table below.

Table 3.2: PSD analysis results

Observation	PSD Analysis
19USS	Sandy Loam
32TS	Organic Sandy clay loam
32USS	Sandy clay loam

### Phosphorus index

The majority of the topsoils (78%) were deficient for phosphorus being below the target index of 2. A similar pattern was observed for the upper subsoils. Only one sub-soil (4%) was above target index, but not excessive.

**Table 3.3: Phosphorus index for the Topsoil**

Phosphorus Index	Recordings	%
0	14	61%
1	4	17%
2	4	17%
3	1	4%
<b>Total</b>	<b>23</b>	<b>100</b>

### Potassium index

The majority of the topsoils (96%) were deficient for potassium being below the target index of 2-. A similar pattern was observed for the upper subsoils. None of the topsoils was above target index.

**Table 3.4: Potassium Index for the topsoil**

Potassium Index	Recordings	%
0	19	84%
1	3	12%
2-	1	4%
<b>Total</b>	<b>23</b>	<b>100</b>



### Magnesium index

Some of the topsoils (36%) were deficient for magnesium being below the target index of 2. A similar pattern was observed for the upper subsoils. None of the topsoils was above target index. Twelve percent of topsoils were above target but not excessive.

**Table 3.5: Magnesium Index for the Topsoil**

Magnesium Index	Recordings	%
1	9	36%
2	11	52%
3	3	12%
<b>Total</b>	<b>23</b>	<b>100</b>

### Organic mater

Unsurprising organic matters were highest in the organic soils. There was on average a high level of organic matter in the mineral soils and it should be noted that a number of the mineral soils had organic topsoils associated with them. The pattern of organic matter was similar in the upper-subsoils but the level of organic matter decreased by approximately 50% for each soil type. A decrease in organic matter down the profile is to be expected.

**Table 3.6: Organic Matter for the Topsoil**

Organic Matter (LOI)	Mean (%)
Light	10.9
Medium	9.1
Heavy	9.1
Organic	36.9
<b>Overall mean</b>	<b>10.5</b>

## pH

On average the soil pH was slightly acidic, which is consistent with the proposed soil types. pH were lowest in the organic and light soils. The pattern of pH was similar in the upper-subsoils but pH levels were on average slightly less acidic

**Table 3.7: pH for the Topsoil**

pH	Mean
Light	5.73
Medium	6.58
Heavy	6.84
Organic	4.9
<b>Overall mean</b>	<b>6.48</b>

## 4 AGRICULTURAL LAND CLASSIFICATION

The Agricultural Land Classification (ALC) system provides a framework for classifying land according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use for food production. The limitations can operate in one or more of four principal ways; they may affect the range of crops which can be grown, the level of crop yield, the consistency of crop yield, and the cost of obtaining a crop.

The classification system gives considerable weight to flexibility of cropping, whether actual or potential, however the ability of some land to produce consistently high yields of a narrower range of crops is also taken into account.

The Agricultural Land Classification (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 by the then Ministry of Agriculture, Fisheries and Food (MAFF) in the 1960s and revised in 1988. A description of the grades used in the ALC system is attached to this report as Appendix 5.

### 4.1 Climate

The agricultural climate is an important factor in assessing the agricultural quality of land, and the agricultural climate of this site has been calculated using the Climatological Data for Agricultural Land Classification<sup>2</sup>. The relevant site data for an average elevation of 88 m AOD is given below.

**Table 4.1: Agro-climatic variables**

<b>Average Annual Rainfall (AAR)</b>	1062 mm
<b>January-June Accumulated Temperature (AT0)</b>	1327
<b>Field Capacity Days (FCD)</b>	244
<b>Field Capacity Period</b>	Late November - late Mar
<b>Moisture Deficit Wheat (MDW)</b>	63
<b>Moisture Deficit Potatoes (MWP)</b>	45
<b>Climate (upper grade limit)</b>	2

The site is located in Northern England and the climatic limitation to agriculture is grade 2.

<sup>2</sup> Meteorological Office, (1989). *Climatological Data for Agricultural Land Classification*.

## 4.2 Results

The results of the soil survey described in section 3 were used in conjunction with the agro-climatic data above to classify the land according to the revised guidelines for Agricultural Land Classification issued in 1988 by the Ministry of Agriculture, Fisheries and Food (now Defra)<sup>3</sup>.

This report has identified agricultural land of Grade 2, Subgrade 3a, Subgrade 3b and Grade 4 quality. The principal limitations to agricultural use of the land are either soil wetness or soil groundwater.

### Grade 1

No land of this quality has been mapped.

### Grade 2

One unit was mapped to this quality. The topsoil had a light texture over lying a light upper subsoils. The main limitations to agriculture are wetness.

### Subgrade 3a

Seven units were mapped to this quality. The topsoil were light/medium textures over lying a light upper subsoils. The main limitations to agriculture are wetness.

### Subgrade 3b

The majority (70%) of the units mapped to this quality of this quality is found in areas where there are topsoils of all class found. On such land the principal limitation to agriculture is soil wetness for medium and heavy soils, but also groundwater for organic and medium soils.

### Grade 4

Five land areas of this quality were mapped. These include medium, heavy and organic soils whose main limitation were either soil wetness or groundwater.

### Grade 5

No land of this quality has been mapped.

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<sup>3</sup> MAFF, (1988). *Agricultural Land Classification for England and Wales: Revised Guidelines and Criteria for Grading the Quality of Agricultural Land*.

## 4.3 Summary of grade areas

Table 4.2: Grade areas

Row Labels	Count of Limiting_factor
<b>2</b>	<b>1</b>
<b>Light</b>	<b>1</b>
Wetness	1
<b>4</b>	<b>5</b>
<b>Heavy</b>	<b>2</b>
Gradient	1
Wetness	1
<b>Medium</b>	<b>2</b>
Gradient	1
Groundwater	1
<b>Organic</b>	<b>1</b>
Groundwater	1
<b>3a</b>	<b>7</b>
<b>Light</b>	<b>2</b>
Wetness	2
<b>Medium</b>	<b>5</b>
Depth	1
Wetness	4
<b>3b</b>	<b>31</b>
<b>Heavy</b>	<b>6</b>
Wetness	6
<b>Light</b>	<b>4</b>
Droughtiness	1
Gradient	1
Groundwater	2
<b>Medium</b>	<b>17</b>
Gradient	1
Groundwater	7
Wetness	9
<b>Organic</b>	<b>4</b>
Groundwater	4
<b>Grand Total</b>	<b>44</b>

The boundaries between the different grades of land are shown on Appendix 2. The number of recordings by each grade is shown below.

**Table 4.3: Grade numbers**

<b>Grade / subgrade</b>	<b>Recordings</b>	<b>%</b>
Grade 1	-	-
Grade 2	1	2
Subgrade 3a	7	16
Subgrade 3b	31	70
Grade 4	5	11
Grade 5	-	-
Non-agricultural		
Urban	-	-
<b>Total</b>	<b>44</b>	<b>100</b>

## 5 CONCLUSION

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ADAS have been instructed by Costain Group plc to undertake an agricultural land classification survey of Land at Simister Island, Manchester.

The survey has identified a range of soils that are difficult to precisely determine as distinct units. The evidence recorded in the profiles descriptions along with the proposed suggest that these soils have been significantly disturbed at some stage. This is not surprising given the proximity of the motorways and urbanisation of the area. By aggregating land parcels into coherent units, the appropriate method for ALC is based the determination on the lowest grade. Thus, the 5 parcels would be classed as grade 3b/4 for the purposes of a formal ALC.

## APPENDIX 1 – OBSERVATION LOCATION MAP

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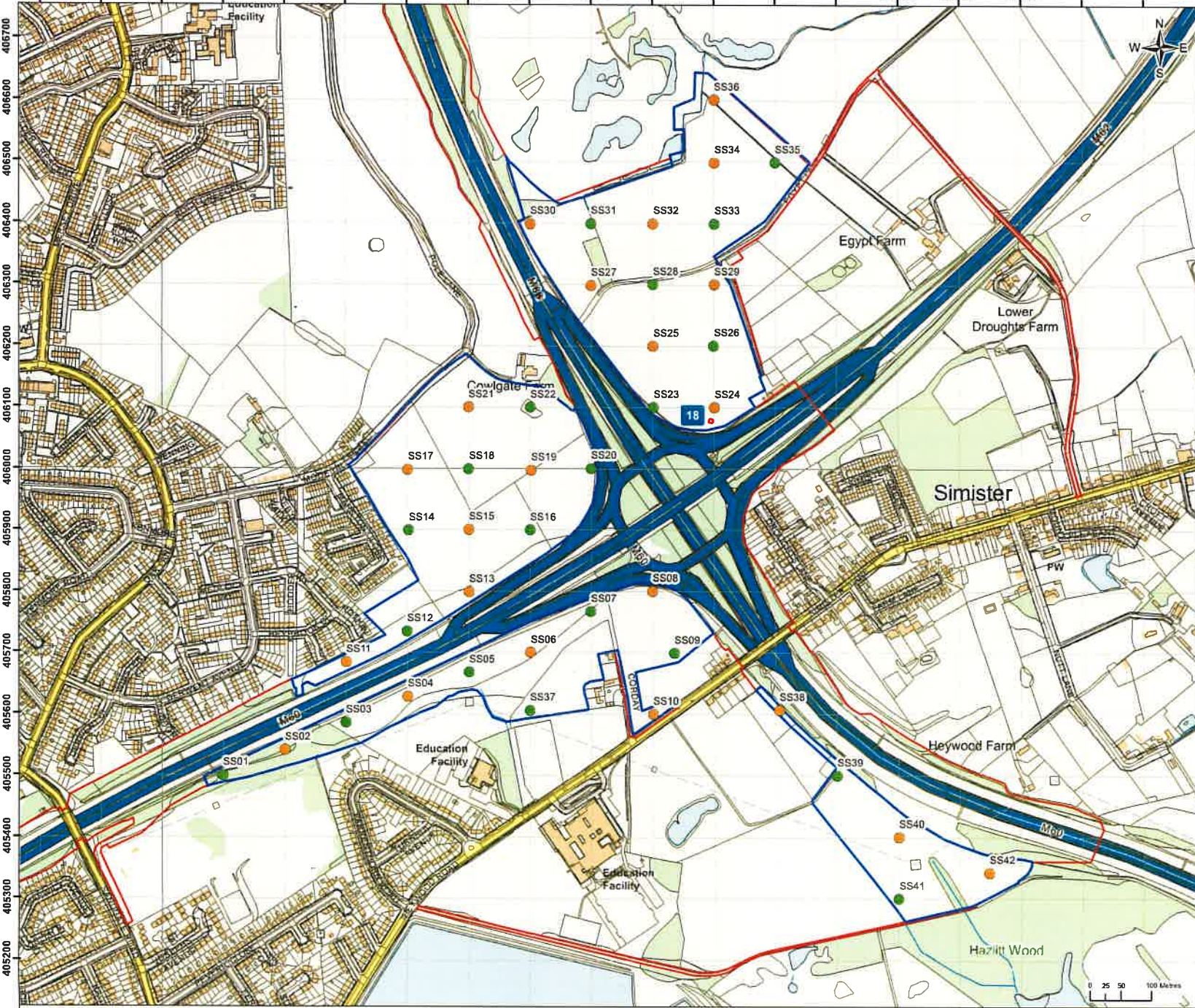


FIGURE 1.1

- Legend**
- Soil survey boundary
  - Scheme boundary
- Scheduled soil survey locations**
- No samples to be taken
  - Topsoil and subsoil samples to be taken



Rev	Date	Description	CC	GK	GK	AP
		Purpose of revision	Drawn	Checked	Revised	Approved

Designer: **JACOBS**  
 5 First Street, Manchester, M4 4FN  
 Tel: +44 (0)161 235 6000

Contractor: **COSTAIN**

Client: **highways england**

Project: M60/M62/M66 SIMISTER ISLAND INTERCHANGE

Drawing Title: SOIL SURVEY LOCATIONS  
 SHEET 1 of 2

Drawing Status: S2 - SUITABLE FOR INFORMATION

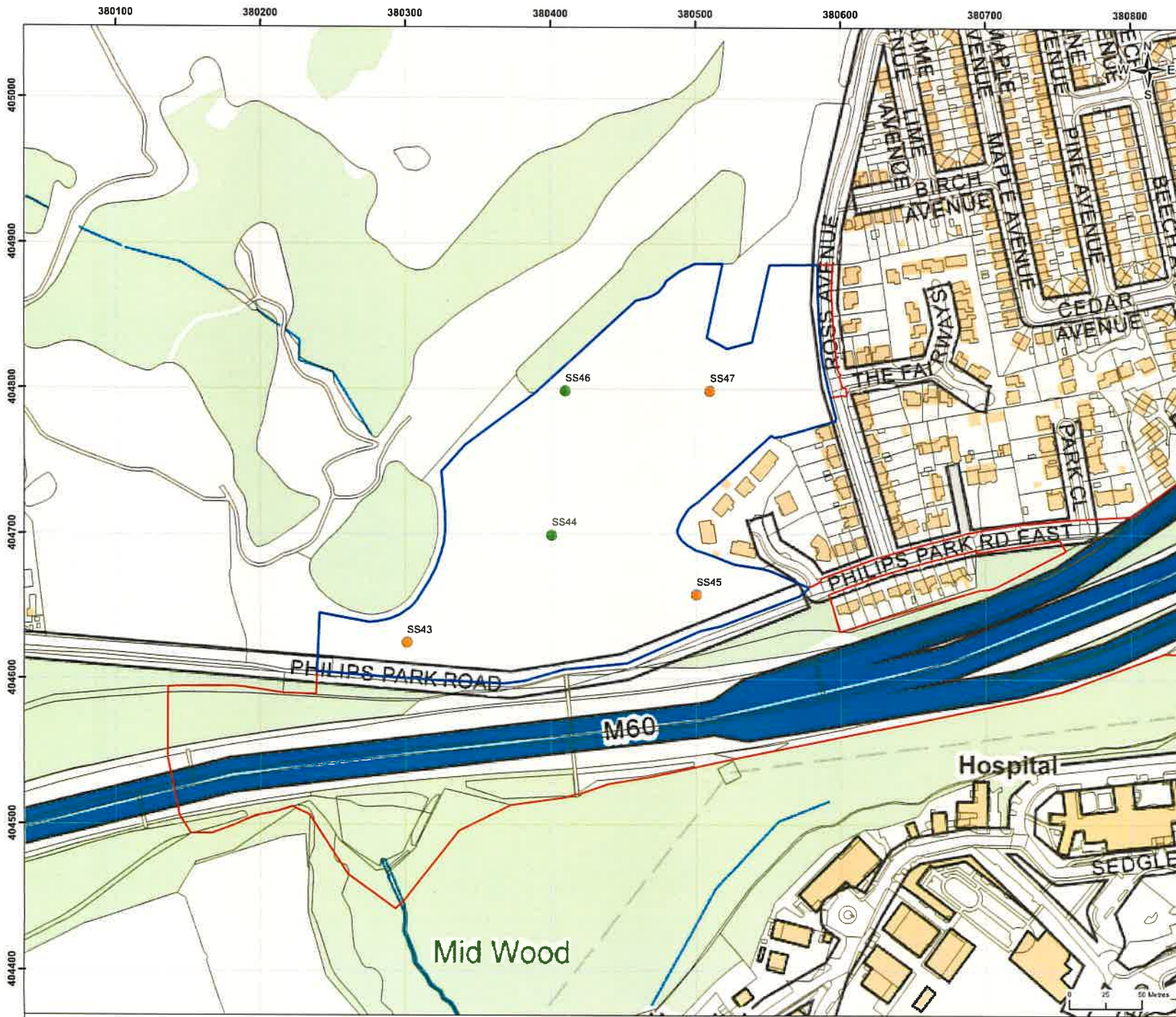
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**FIGURE 1.2**

- Legend**
- Soil survey boundary
  - Scheme boundary
- Scheduled soil survey locations**
- No samples to be taken
  - Topsoil and subsoil samples to be taken



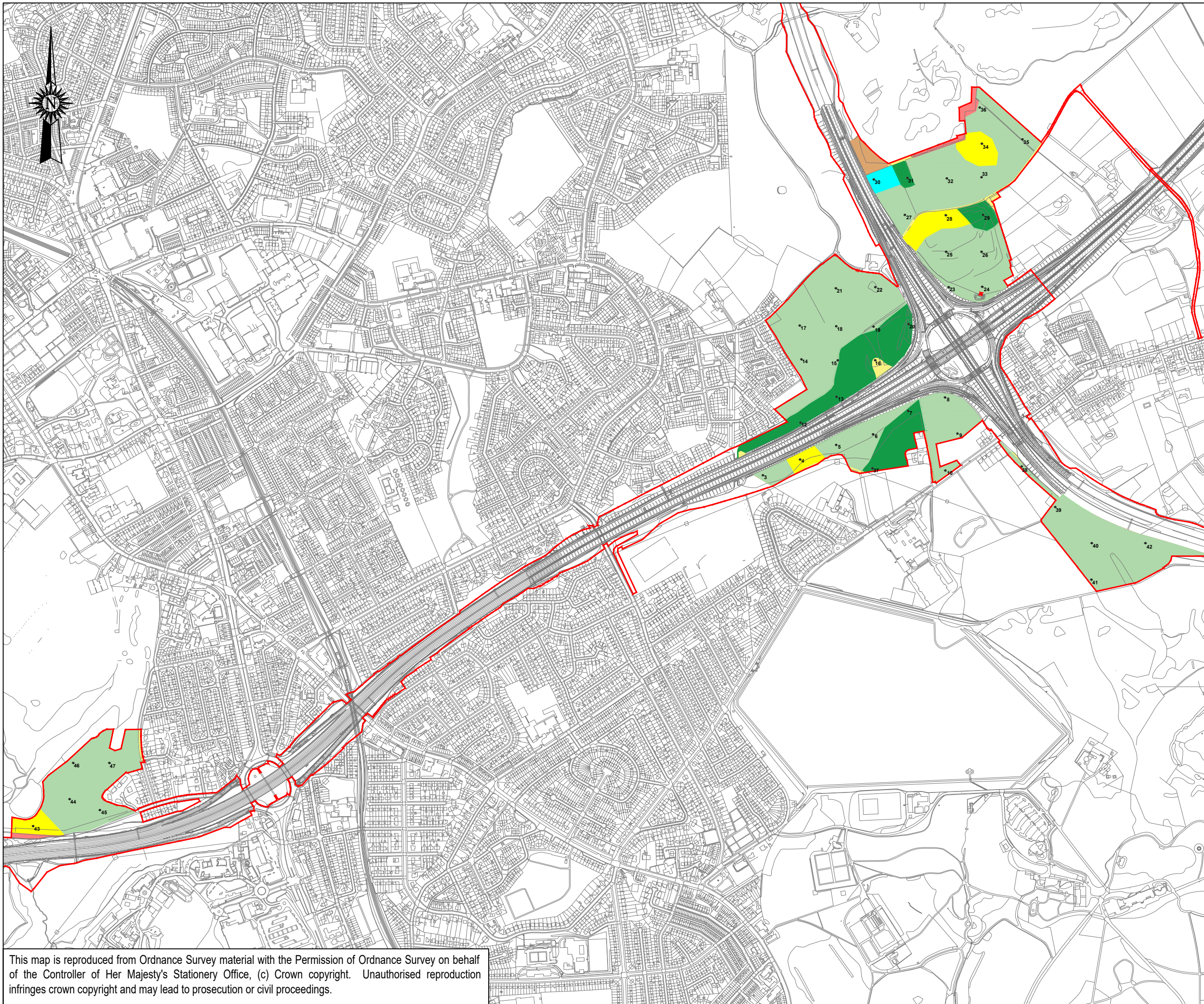
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Rev	Date	Purpose of revision	Drawn	Checked	Revised	Approved
Designer	<b>JACOBS</b> 5 First Street, Stockley Park, Uxbridge, Middlesex, UK Tel: +44 (0)161 235 5000		Contractor <b>COSTAIN</b>			
Client						
Project	M60/M62/M66 SIMISTER ISLAND INTERCHANGE					
Drawing Title	SOIL SURVEY LOCATIONS SHEET 2 of 2					
Drawing Status	S2 - SUITABLE FOR INFORMATION					
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## APPENDIX 2 – AGRICULTURAL LAND CLASSIFICATION AND SOIL TYPE MAPS

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### AGRICULTURAL LAND CLASSIFICATION

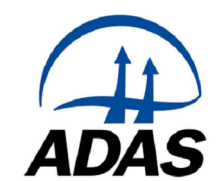
- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Land predominantly in urban use
- Other land primarily in non-agricultural use
- Auger survey location
- Red Line Boundary

16.01.24	TF	DI	B	AGRICULTURAL LAND CLASSIFICATION
28.02.22	LB	JA	A	AGRICULTURAL LAND CLASSIFICATION
DATE	DRAWN	CHKD	REVD	ISSUE

#### MAP 3 (overview) AGRICULTURAL LAND CLASSIFICATION - SURVEY FINDINGS

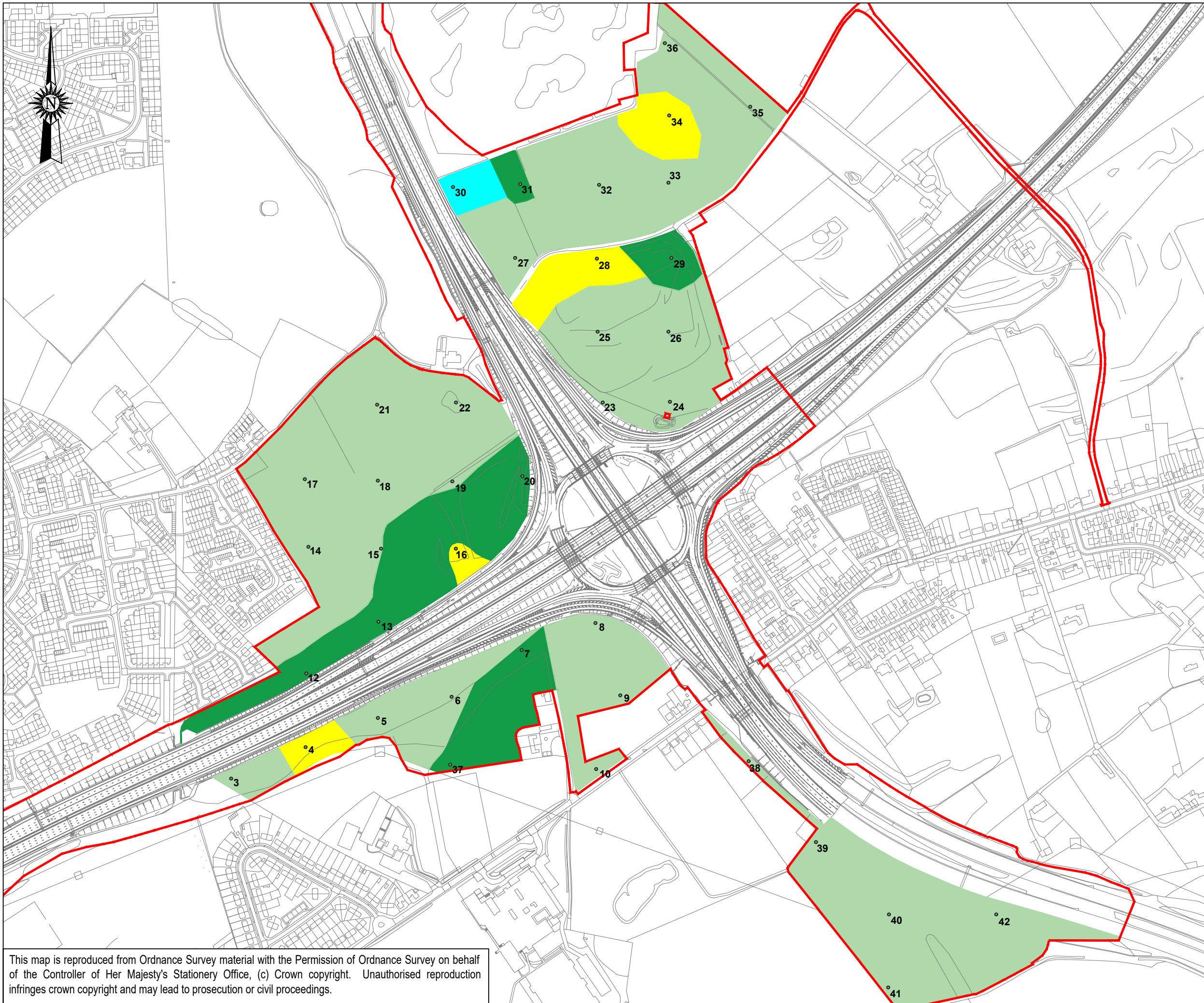
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### AGRICULTURAL LAND CLASSIFICATION

- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Land predominantly in urban use
- Other land primarily in non-agricultural use
- Auger survey location
- Red Line Boundary

24.07.23	TF	JA	B	AGRICULTURAL LAND CLASSIFICATION
28.02.22	LB	JA	A	AGRICULTURAL LAND CLASSIFICATION
DATE	DRAWN	CHKD	REVD	ISSUE

#### MAP 1 AGRICULTURAL LAND CLASSIFICATION - SURVEY FINDINGS

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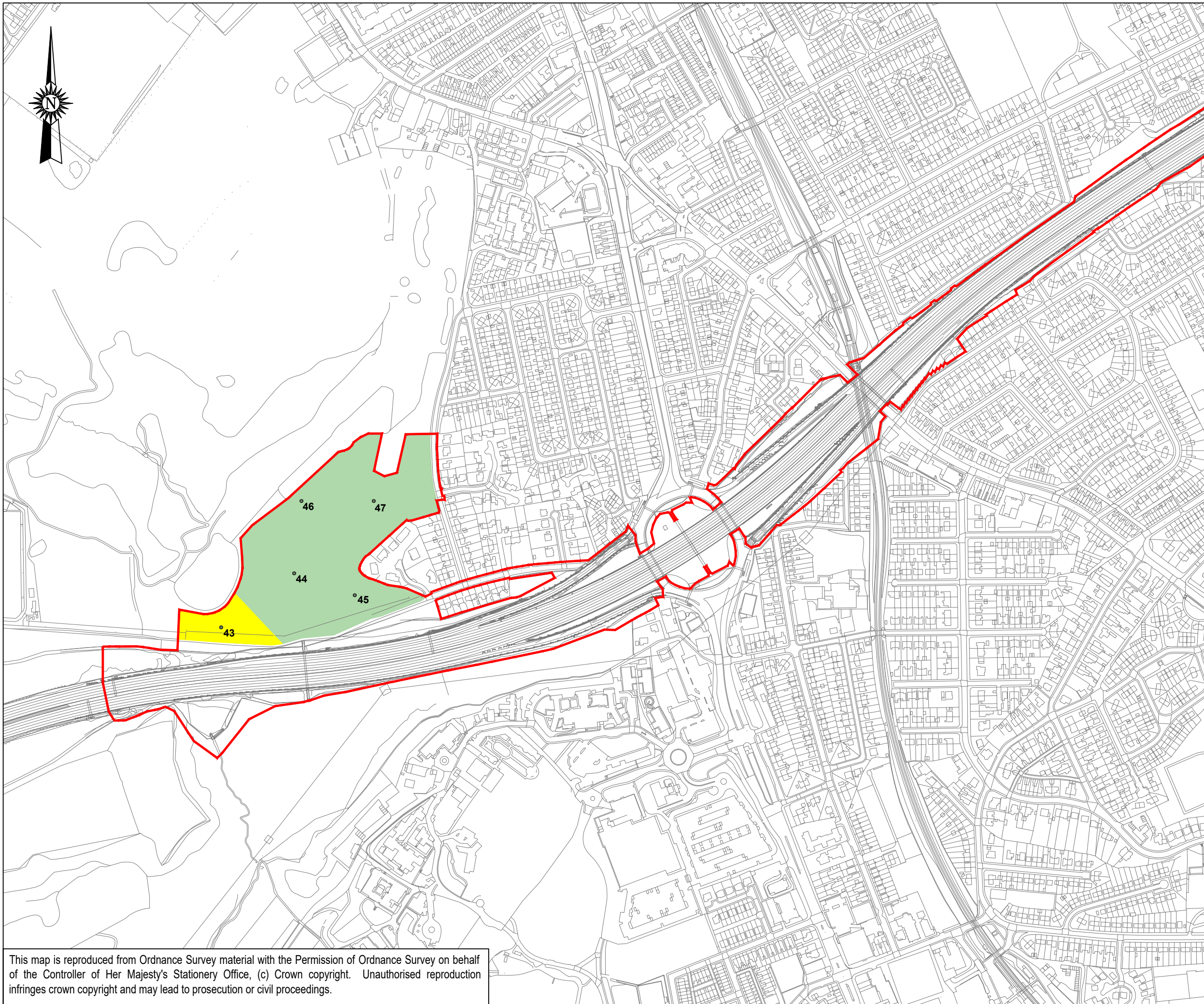
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### AGRICULTURAL LAND CLASSIFICATION

- Grade 1
- Grade 2
- Grade 3a
- Grade 3b
- Grade 4
- Grade 5
- Land predominantly in urban use
- Other land primarily in non-agricultural use
- Auger survey location
- Red Line Boundary

28.02.22	LB	JA	A	AGRICULTURAL LAND CLASSIFICATION
DATE	DRAWN	CHKD	REVD	ISSUE

#### MAP 2 AGRICULTURAL LAND CLASSIFICATION - SURVEY FINDINGS

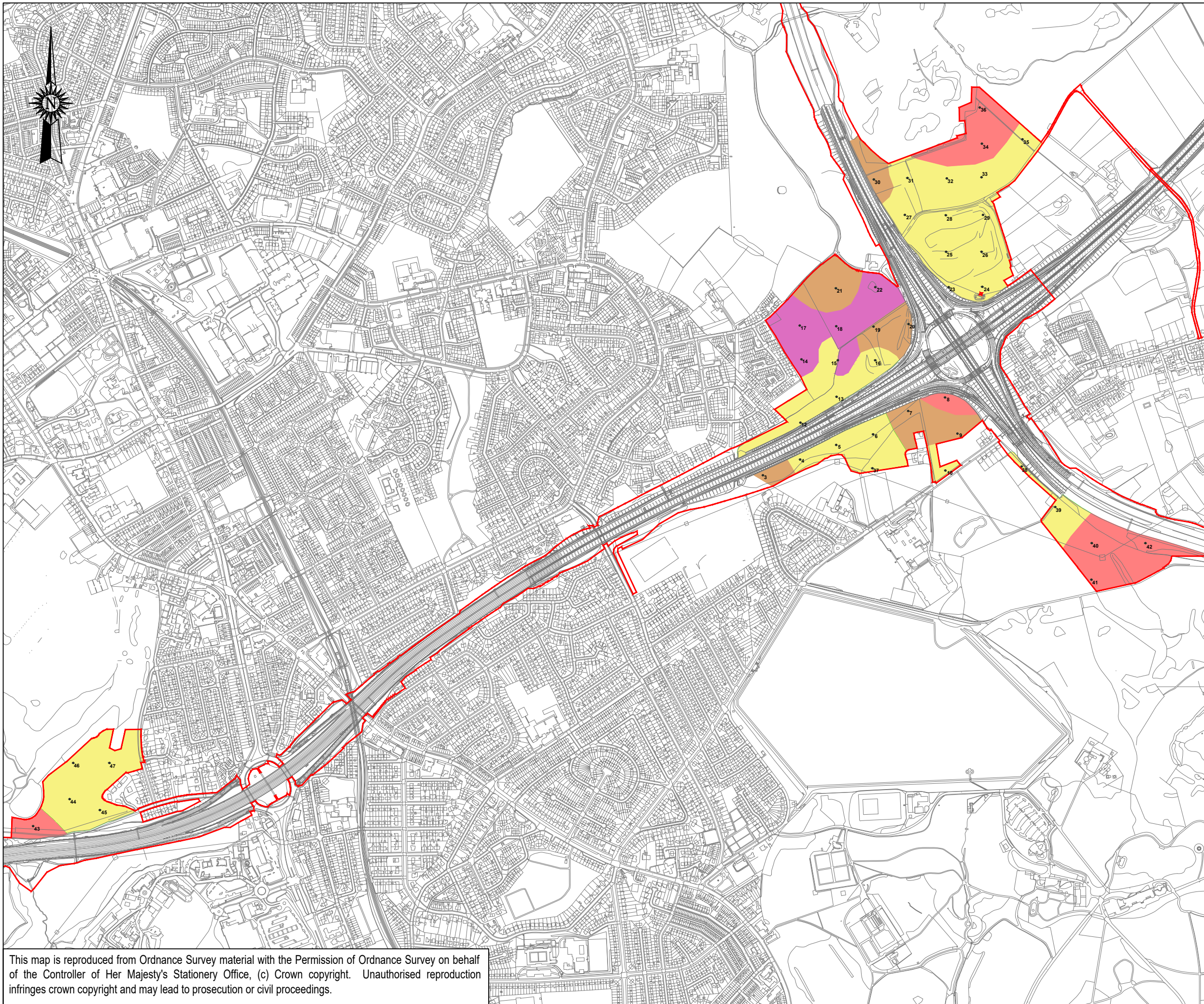
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**SOIL TYPE**

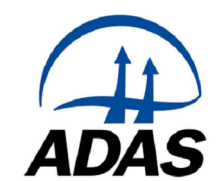
- Light Soils
- Medium Soils
- Heavy Soils
- Organic Soils
- Auger survey location
- Red Line Boundary

16.01.24	TF	DI	B	Soil Type
28.02.22	LB	JA	A	Soil Type
DATE	DRAWN	CHKD	REVD	ISSUE

**MAP 3 (overview)  
SOIL TYPE - SURVEY FINDINGS**

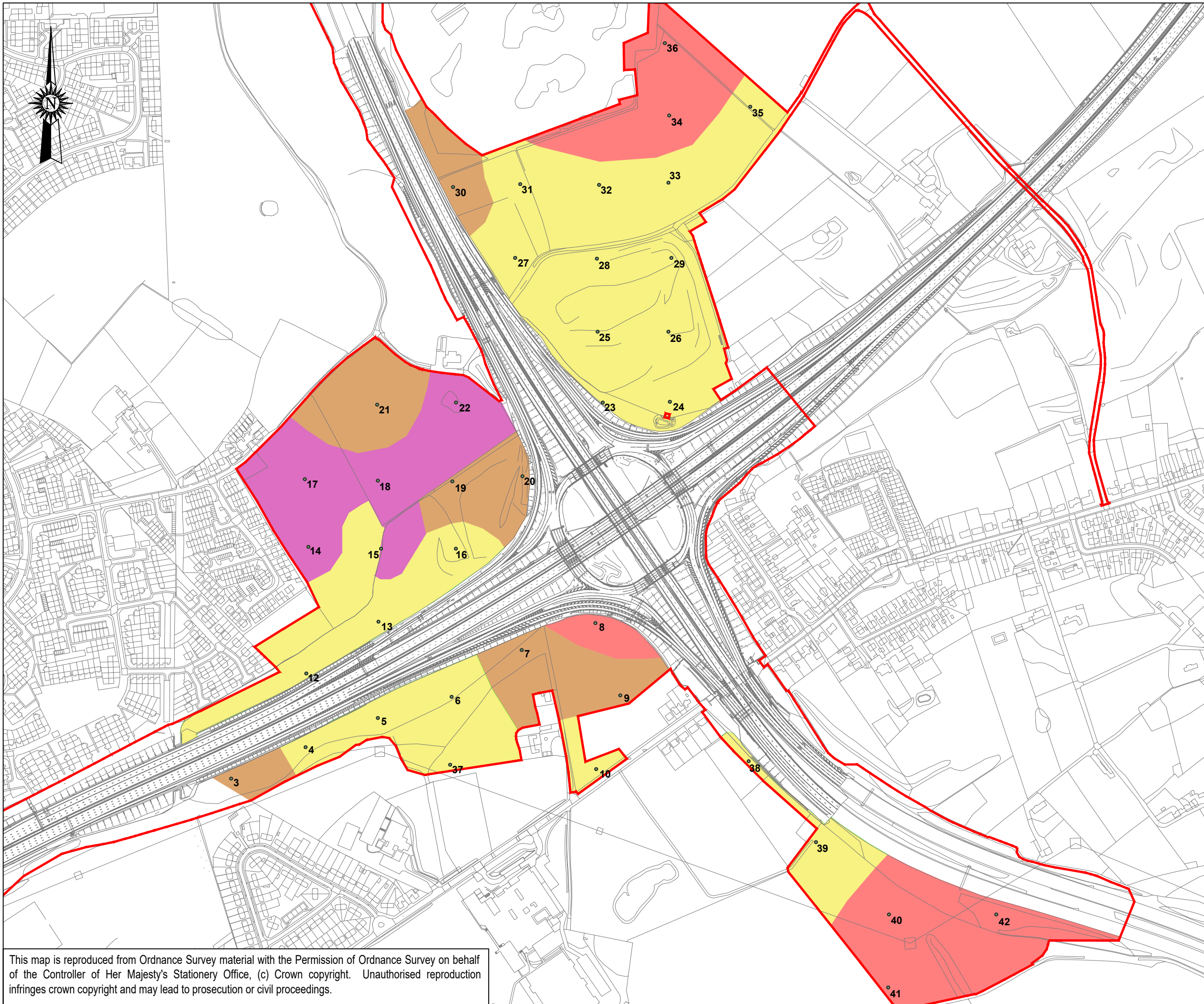
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**SOIL TYPE**

- Light Soils
- Medium Soils
- Heavy Soils
- Organic Soils
- Auger survey location
- Red Line Boundary

16.01.24	TF	DI	B	Soil Type
28.02.22	LB	JA	A	Soil Type
DATE	DRAWN	CHKD	REVD	ISSUE

**MAP 1  
SOIL TYPE - SURVEY FINDINGS**

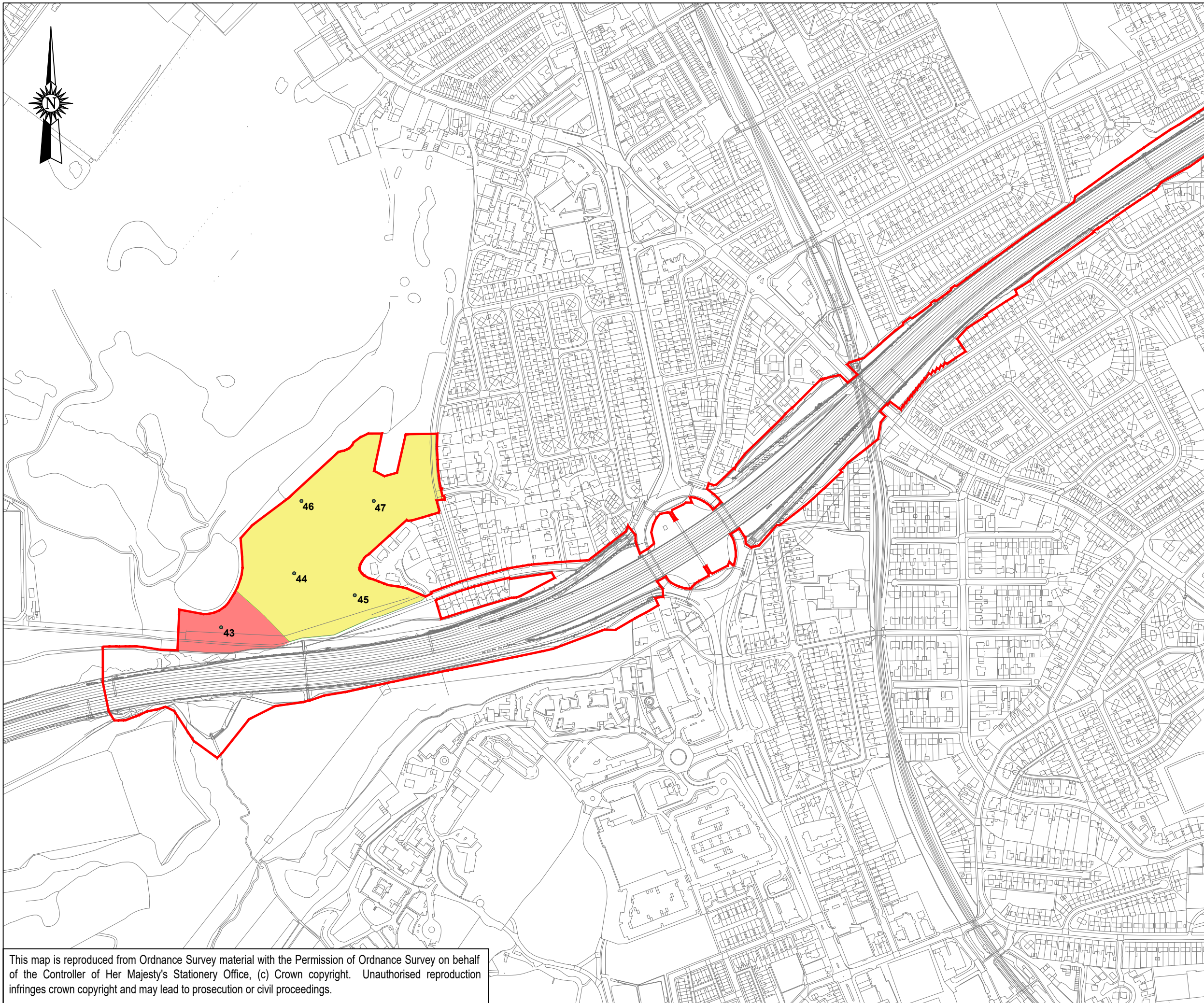
SCALE	1/5000	MASTER SIZE	A3
DRAWING NO.	1010807/SOILTYPE 01	ISSUE	A
CLIENT:			

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### SOIL TYPE

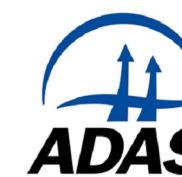
- Light Soils
- Medium Soils
- Heavy Soils
- Organic Soils
- Auger survey location
- Red Line Boundary

16.01.24	TF	DI	B	Soil Type
28.02.22	LB	JA	A	Soil Type
DATE	DRAWN	CHKD	REVD	ISSUE

### MAP 2 SOIL TYPE - SURVEY FINDINGS

SCALE	1/5000	MASTER SIZE	A3
DRAWING NO.	1010807/SOILTYPE 02	ISSUE	A
CLIENT:			

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## APPENDIX 3 – ALC SURVEY DETAILS

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Location_ID	X_Easting	Y_Northing	Date	Surveyor	Land use	Hole_type	Layer	Soil_Horizon	Upper_Depth	Lower_Depth	Termination_reason	Lower_boundary	Texture_hand	Texture class	Colour_Description	Colour_Munsell
3	382299	405586	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	1	TS	0	23	n/a		OL	Organic	Bk	75yr21
3	382299	405586	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	2	USS	23	54	n/a		MSL	Light	Dk Br + Br	75yr33 + 75yr52
3	382299	405586	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	3	LSS1	54	84	n/a		SCL-SC	#N/A	Dk Gr	75yr41
3	382299	405586	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	4	LSS2	84	94	n/a		MS	Light	St Br	75yr46
3	382299	405586	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	5	LSS3	94	120	1.2m depth reached		SCL-SC	#N/A	Dk Gr	10yr41
4	382401	405629	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	1	TS	0	17	n/a		SCL	Medium	Dk Br	75yr32
4	382401	405629	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	2	USS	17	35	n/a		SCL	Medium	V Dk Gr Br + Br	10yr32 + 75yr54
4	382401	405629	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	3	LSS1	35	75	n/a		SCL	Medium	Rd Br + Gr	5yr53 + 10yr51
4	382401	405629	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	4	LSS2	75	107	n/a		SCL	Medium	Dk Gr + V Dk Gr Br	10yr41 + 10yr32
4	382401	405629	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	5	LSS3	107	120	1.2m depth reached		SCL	Medium	Dk Br	75yr32
5	382500	405669	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	1	TS	0	16	n/a		SCL	Medium	V Dk Br	10yr22
5	382500	405669	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	2	USS	16	57	n/a		SCL	Medium	Dk Br	75yr33
5	382500	405669	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	3	LSS1	57	83	n/a		MSL	Light	Dk Gr	75yr41
5	382500	405669	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	4	LSS2	83	120	1.2m depth reached		SCL	Medium	Dk Gr	75yr41
6	382601	405698	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	1	TS	0	20	n/a		MCL	Medium	Dk Br	75yr32
6	382601	405698	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	2	USS	20	36	n/a		MCL	Medium	Br + Br	75yr43 + 75yr52
6	382601	405698	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	3	LSS1	36	75	n/a		MCL	Medium	Br + Dk Br	75yr52 + 75yr34
6	382601	405698	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	4	LSS2	75	120	1.2m depth reached		HCL	Heavy	Bk	10yr21
7	382697	405762	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	1	TS	0	24	n/a		MSL	Light	V Dk Br	75yr252
7	382697	405762	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	2	USS	24	49	n/a		MSL	Light	Dk Br + Yl Rd	75yr32 + 5yr46
7	382697	405762	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	3	LSS1	49	90	n/a		LMS	Light	Dk Br	75yr32
7	382697	405762	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	4	LSS2	90	120	1.2m depth reached		MS	Light	Dk Br	75yr32
8	382798	405799	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	1	TS	0	30	n/a		MCL	Medium	V Dk Br	10yr22
8	382798	405799	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	2	USS	30	75	n/a		HZCL	Heavy	Gr	10yr51
8	382798	405799	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	3	LSS1	75	87	n/a		ZC	Heavy	Br + Gr	75yr52 + 75yr51
8	382798	405799	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	4	LSS2	87	120	1.2m depth reached		HZCL	Heavy	Dk Gr	10yr41
9	382832	405700	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	1	TS	0	41	n/a		OL	Organic	Bk	10yr21
9	382832	405700	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	2	USS	41	84	n/a		MS	Light	Pi Gr	75yr62
9	382832	405700	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	3	LSS1	84	106	n/a		MS	Light	Li Rd Br + Pi Gr	5yr64 + 75yr62
9	382832	405700	28/10/2021 09:53	Simon McMillan	grassland - grazed	Hand Auger	4	LSS2	106	120	1.2m depth reached		MSL	Light	Br + Pi Gr	75yr52 + 75yr62
10	382799	405599	28/10/2021 09:54	Simon McMillan	grassland - grazed	Soil Pit	1	TS	0	34	n/a	Sharp	MCL	Medium	Bk	10yr21
10	382799	405599	28/10/2021 09:54	Simon McMillan	grassland - grazed	Soil Pit	2	USS	34	44	n/a		C	Heavy	Gr	10yr61
10	382799	405599	28/10/2021 09:54	Simon McMillan	grassland - grazed	Soil Pit	3	LSS1	44	54	n/a		LMS	Light	Gr Br	10yr52
10	382799	405599	28/10/2021 09:54	Simon McMillan	grassland - grazed	Soil Pit	4	LSS2	54	120	1.2m depth reached		C	Heavy	Gr	10yr61
12	382402	405730	28/10/2021 09:54	Simon McMillan	scrub	Hand Auger	1	TS	0	30	n/a		OL	Organic	V Dk Gr Br	10yr32
12	382402	405730	28/10/2021 09:54	Simon McMillan	scrub	Hand Auger	2	USS	30	60	Stones		SCL	Medium	Br + Gr Br	10yr53 + 10yr52
13	382499	405797	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	18	n/a		OL	Organic	V Dk Gr	10yr31
13	382499	405797	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	18	38	Stones		SCL	Medium	Dk Gr Br	10yr42
14	382403	405900	28/10/2021 09:54	Simon McMillan	grassland - other	Soil Pit	1	TS	0	21	n/a		OL	Organic	Bk	10yr21
14	382403	405900	28/10/2021 09:54	Simon McMillan	grassland - other	Soil Pit	2	USS	21	65	n/a		PL	Peaty	Bk	10yr21
14	382403	405900	28/10/2021 09:54	Simon McMillan	grassland - other	Soil Pit	3	LSS1	65	87	n/a		MSL	Light	Gr Br	10yr52
14	382403	405900	28/10/2021 09:54	Simon McMillan	grassland - other	Soil Pit	4	LSS2	87	120	1.2m depth reached		MZCL	Medium	Gr Br	10yr52
15	382503	405897	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	15	n/a		OL	Organic	Bk	10yr21
15	382503	405897	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	15	46	n/a		SCL	Medium	V Dk Gr	10yr31
15	382503	405897	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	3	LSS1	46	120	1.2m depth reached		LMS	Light	V Dk Gr	10yr31
16	382605	405897	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	35	n/a		OL	Organic	V Dk Br	10yr22
16	382605	405897	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	35	44	n/a		LP	Peaty	Bk	10yr21
16	382605	405897	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	3	LSS1	44	120	1.2m depth reached		SCL	Medium	V Dk Gr Br	10yr32
17	382400	405996	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	36	n/a		OL	Organic	Bk	10yr21
17	382400	405996	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	36	68	n/a		LP	Peaty	Bk	10yr21
17	382400	405996	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	3	LSS1	68	120	1.2m depth reached		MS	Light	Br	75yr44
18	382500	405994	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	26	n/a		PL	Peaty	Bk	10yr21
18	382500	405994	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	26	60	n/a		HZCL	Heavy	Br	75yr52
18	382500	405994	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	3	LSS1	60	120	1.2m depth reached		MSZL	Light	Gr	10yr51
19	382602	405993	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	20	n/a		MSL	Light	V Dk Gr Br	10yr32
19	382602	405993	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	20	42	n/a		MS	Light	Yl Br	10yr54
19	382602	405993	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	3	LSS1	42	62	n/a		MZCL	Medium	Gr Br	10yr52
19	382602	405993	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	4	LSS2	62	83	n/a		PL	Peaty	Bk	10yr21
19	382602	405993	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	5	LSS3	83	120	1.2m depth reached		MSL	Light	V Dk Gr Br + Gr Br	10yr32 + 10yr52
20	382698	406000	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	26	n/a		OL	Organic	Bk	10yr21
20	382698	406000	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	26	35	n/a		MSL	Light	St Br	75yr46
20	382698	406000	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	3	LSS1	35	120	1.2m depth reached		LMS	Light	St Br	75yr56
21	382499	406098	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	38	n/a		OL	Organic	Bk	10yr21
21	382499	406098	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	38	72	n/a		MSL	Light	V Dk Gr Br	75yr31
21	382499	406098	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	3	LSS1	72	120	1.2m depth reached		MSL	Light	Bk + Gr Br	10yr21 + 10yr52
22	382607	406101	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	22	n/a		LP	Peaty	Bk	10yr21
22	382607	406101	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	22	120	1.2m depth reached		HP	Peat	Bk	10yr21
23	382808	406101	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	27	n/a		OL	Organic	V Dk Br	10yr22
23	382808	406101	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	27	53	n/a		SCL	Medium	Dk Gr Br	10yr42
23	382808	406101	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	3	LSS1	53	79	n/a		PL	Peaty	Bk	10yr21
23	382808	406101	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	4	LSS2	79	120	1.2m depth reached		OL	Organic	Li Br Gr + Gr	10yr62 + 10yr51
24	382900	406102	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	24	n/a		OL	Organic	V Dk Br	10yr22
24	382900	406102	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	24	58	n/a		SCL	Medium	Br	75yr52
24	382900	406102	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	3	LSS1	58	94	n/a		PL	Peaty	V Dk Gr Br	10yr32
24	382900	406102	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	4	LSS2	94	120	1.2m depth reached		PL	Peaty	Bk	10yr21
25	382801	406198	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	1	TS	0	33	n/a		OL	Organic	Dk Br	75yr32
25	382801	406198	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	2	USS	33	73	n/a		MCL	Medium	Dk Br	75yr32
25	382801	406198	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	3	LSS1	73	120	1.2m depth reached		HCL	Heavy	Br	75yr52
26	382898	406198	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	1	TS	0	25	n/a		OL	Organic	V Dk Br	10yr22





Location_ID	X_Easting	Y_Northing	Date	Surveyor	Land use	Hole_type	Layer	Soil_Horizon	Upper_Depth	Lower_Depth	Termination_reason	Lower_boundary	Texture_hand	Texture class	Colour_Description	Colour_Munsell
26	382898	406198	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	2	USS	25	66	n/a		SCL	Medium	Dk Gr Br + Br	10yr42 + 75yr52
26	382898	406198	28/10/2021 09:54	Simon McMillan	grassland - other	Hand Auger	3	LSS1	66	74	Stones		C	Heavy	Dk Gr Br + Gr	10yr42 + 75yr51
27	382688	406299	11/10/2021 19:32	Kevin Brook	scrub	Hand Auger	1	TS	0	41	n/a		OL	Organic	Bk	75yr251
27	382688	406299	11/10/2021 19:32	Kevin Brook	scrub	Hand Auger	2	USS	41	101	n/a		SCL	Medium	Br	75yr53
27	382688	406299	11/10/2021 19:32	Kevin Brook	scrub	Hand Auger	3	LSS1	101	120	1.2m depth reached		FSL	Light	Gr	75yr61
28	382800	406298	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	1	TS	0	21	n/a		OL	Organic	V Dk Gr	75yr31
28	382800	406298	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	2	USS	21	54	n/a		SCL	Medium	V Dk Br	75yr253
28	382800	406298	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	3	LSS1	54	96	n/a		SCL	Medium	V Dk Br	75yr253
28	382800	406298	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	4	LSS2	96	120	1.2m depth reached		MSL	Light	Br	75yr52
29	382902	406299	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	1	TS	0	21	n/a		OL	Organic	Bk	75yr251
29	382902	406299	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	2	USS	21	48	n/a		SCL	Medium	Br	10yr43
29	382902	406299	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	3	LSS1	48	84	n/a		HCL	Heavy	Dk Br	75yr32
29	382902	406299	11/10/2021 19:32	Kevin Brook	grassland - other	Hand Auger	4	LSS2	84	120	1.2m depth reached		HCL	Heavy	Dk Gr	75yr41
30	382603	406396	28/10/2021 09:54	Simon McMillan	scrub	Hand Auger	1	TS	0	39	n/a		OL	Organic	Bk	10yr21
30	382603	406396	28/10/2021 09:54	Simon McMillan	scrub	Hand Auger	2	USS	39	55	n/a		FS	Light	Li Br Gr	10yr62
30	382603	406396	28/10/2021 09:54	Simon McMillan	scrub	Hand Auger	3	LSS1	55	76	Stones		FS	Light	Yl Rd	5yr46
31	382695	406400	28/10/2021 09:54	Simon McMillan	scrub	Hand Auger	1	TS	0	29	n/a		OL	Organic	Bk	10yr21
31	382695	406400	28/10/2021 09:54	Simon McMillan	scrub	Hand Auger	2	USS	29	57	n/a		SCL	Medium	V Dk Br	10yr22
31	382695	406400	28/10/2021 09:54	Simon McMillan	scrub	Hand Auger	3	LSS1	57	84	n/a		SCL	Medium	Dk Br + Br	75yr34 + 75yr43
31	382695	406400	28/10/2021 09:54	Simon McMillan	scrub	Hand Auger	4	LSS2	84	120	1.2m depth reached		C	Heavy	Gr	10yr51
32	382803	406399	28/10/2021 09:54	Simon McMillan	grassland - grazed	Hand Auger	1	TS	0	28	n/a		OL	Organic	Bk	10yr21
32	382803	406399	28/10/2021 09:54	Simon McMillan	grassland - grazed	Hand Auger	2	USS	28	44	n/a		SCL	Medium	Gr Br	10yr52
32	382803	406399	28/10/2021 09:54	Simon McMillan	grassland - grazed	Hand Auger	3	LSS1	44	120	1.2m depth reached		HCL	Heavy	Gr Br + Gr	10yr52 + 75yr51
33	382898	406402	28/10/2021 09:54	Simon McMillan	grassland - grazed	Soil Pit	1	TS	0	35	n/a	Diffuse	SCL	Medium	V Dk Br	10yr22
33	382898	406402	28/10/2021 09:54	Simon McMillan	grassland - grazed	Soil Pit	2	USS	35	61	n/a	Clear	OL	Organic	Bk	10yr21
33	382898	406402	28/10/2021 09:54	Simon McMillan	grassland - grazed	Soil Pit	3	LSS1	61	91	n/a		SCL-SC	#N/A	Gr	10yr51
33	382898	406400	11/10/2021 19:32	Kevin Brook	grassland - grazed	Soil Pit	4	LSS2	91	120	1.2m depth reached		MSL	Light	Br + Gr	75yr52 + 75yr51
34	382899	406494	11/10/2021 19:32	Kevin Brook	grassland - grazed	Hand Auger	1	TS	0	23	n/a		SCL	Medium	V Dk Gr Br	10yr32
34	382899	406494	11/10/2021 19:32	Kevin Brook	grassland - grazed	Hand Auger	2	USS	23	88	n/a		HCL	Heavy	Gr	10yr61
34	382899	406494	11/10/2021 19:32	Kevin Brook	grassland - grazed	Hand Auger	3	LSS1	88	120	1.2m depth reached		HCL	Heavy	Gr Br	10yr52
35	383010	406506	11/10/2021 19:32	Kevin Brook	grassland - grazed	Hand Auger	1	TS	0	28	n/a		SCL	Medium	Bk	10yr21
35	383010	406506	11/10/2021 19:32	Kevin Brook	grassland - grazed	Hand Auger	2	USS	28	48	n/a		SCL	Medium	Br	75yr52
35	383010	406506	11/10/2021 19:32	Kevin Brook	grassland - grazed	Hand Auger	3	LSS1	48	75	n/a		MS	Light	Br	75yr52
35	383010	406506	11/10/2021 19:32	Kevin Brook	grassland - grazed	Hand Auger	4	LSS2	75	120	1.2m depth reached		MS	Light	Br	75yr54
36	382893	406593	11/10/2021 19:32	Kevin Brook	grassland - grazed	Hand Auger	1	TS	0	38	n/a		SCL	Medium	V Dk Gr Br	10yr32
36	382893	406593	11/10/2021 19:32	Kevin Brook	grassland - grazed	Hand Auger	2	USS	38	95	n/a		HCL	Heavy	Li Br Gr	10yr62
36	382893	406593	11/10/2021 19:32	Kevin Brook	grassland - grazed	Hand Auger	3	LSS1	95	120	1.2m depth reached		MSL	Light	Li Gr	10yr71
38	383006	405606	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	1	TS	0	28	n/a		MCL	Medium	VDkGr	10yr31
38	383006	405606	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	2	USS	28	72	n/a		MCL	Medium	Gr+BrYe	10yr61+10yr66
38	383006	405606	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	3	LSS1	72	120	1.2m depth reached		MCL	Medium	Br	10yr53
39	383100	405499	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	1	TS	0	28	n/a		MCL	Medium	VDkGrBr	10yr32
39	383100	405499	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	2	USS	28	65	n/a		SCL	Medium	Gr+StBr	75yr61+75yr56
39	383100	405499	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	3	LSS1	65	100	Stones		MCL	Medium	DkYeBr	10yr44
40	383200	405400	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	1	TS	0	28	n/a		MCL	Medium	VDkGrBr	10yr32
40	383200	405400	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	2	USS	28	65	n/a		HCL	Heavy	Gr+Br	75yr61+75yr55
40	383200	405400	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	3	LSS1	65	90	n/a		SL	Light	DkYeBr	10yr44
40	383200	405400	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	4	LSS2	90	100	Stones		SL	Light	DkGrBr	10yr42
42	383347	405400	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	1	TS	0	24	n/a		MCL	Medium	DkGrBr	10yr42
42	383347	405400	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	2	USS	24	52	n/a		HCL	Heavy	Gr+BrYe	10yr61+10yr68
42	383347	405400	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	3	LSS1	52	74	n/a		MCL	Medium	Br	10yr43
42	383347	405400	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	4	LSS2	74	120	1.2m depth reached		MCL	Medium	DkGrBr	10yr42
41	383199	405300	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	1	TS	0	33	n/a		MCL	Medium	DkGrBr	10yr42
41	383199	405300	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	2	USS	33	52	n/a		C	Heavy	Gr+BrYe	10yr61+10yr68
41	383199	405300	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	3	LSS1	52	68	n/a		C	Heavy	Gr+BrYe	10yr61+10yr68
41	383199	405300	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	4	LSS2	68	120	1.2m depth reached		C	Heavy	Gr+BrYe	10yr61+10yr68
37	382599	405605	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	1	TS	0	62	n/a		MCL	Medium	VDkGrBr	10yr32
37	382599	405605	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	2	USS	62	88	n/a		SL	Light	Br	10yr53
37	382599	405605	03/12/2021 09:30	Kevin Brook	Grassland - grazed	Hand Auger	3	LSS1	88	120	1.2m depth reached		LMS	Light	YlBr	10yr54
45	380483	404669	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	1	TS	0	30	n/a		MCL	Medium	DkGrBr	10yr42
45	380483	404669	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	2	USS	30	72	n/a		MCL	Medium	PaBr	10yr63
45	380483	404669	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	3	LSS1	72	120	1.2m depth reached		MCL	Medium	DkGrBr	10yr42
47	380509	404798	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	1	TS	0	20	n/a		MCL	Medium	DkGrBr	10yr42
47	380509	404798	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	2	USS	20	55	n/a		MCL	Medium	GrBr	10yr52
47	380509	404798	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	3	LSS1	55	120	1.2m depth reached		HCL	Heavy	Gr+BrYe	10yr51+10yr66
46	380410	404798	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	1	TS	0	34	n/a		MCL	Medium	DkGrBr	10yr42
46	380410	404798	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	2	USS	34	52	n/a		SCL	Medium	LiGr	10yr71
46	380410	404798	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	3	LSS1	52	120	1.2m depth reached		LS	Light	Br	10yr53
44	380400	404699	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	1	TS	0	20	n/a		MCL	Medium	DkGrBr	10yr42
44	380400	404699	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	2	USS	20	90	Stones		MCL	Medium	GrBr	10tr52
43	380300	404625	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	1	TS	0	45	n/a		MCL	Medium	DkGrBr	10yr42
43	380300	404625	03/12/2021 09:30	Kevin Brook	scrub	Hand Auger	2	USS	45	120	1.2m depth reached		HCL	Heavy	GrBr	10yr52



Location_ID	Wetness_Class	ALC_Grade	Limiting_factor	Limiting_factor_2	Limiting_factor_3	Loss_on_ignition	pH	P	K	Mg	Total_N	Total_C	C_N_Ratio	Texture_lab_class	Comments
26	IV	3b	Groundwater												
26	IV	3b	Groundwater												Impen due to stones. 3 augers tried.
27	II	3b	Wetness			11.5	6	6	17.7	50.1	0.367	6.89	18.8		organic
27	II	3b	Wetness			2.5	6.1	41.2	<15	15.4	0.077	1.31	17		Borderline gleyed
27	II	3b	Wetness												wet
28	V	4	Groundwater												Organic
28	V	4	Groundwater												
28	V	4	Groundwater												sandy
28	V	4	Groundwater												
29	I	3a	Wetness			10.3	6.9	8.6	44.3	99.3	0.371	5.66	15.2		Organic
29	I	3a	Wetness			2	8	5.6	61.3	174	0.084	1.51	18		
29	I	3a	Wetness												sandy dry
30	I	2	Wetness			14	5.7	5.8	21.8	87.2	0.421	8.24	19.6		Clearly disturbed
30	I	2	Wetness			2.7	6.1	3.8	<15	50.8	0.095	1.62	17		
30	I	2	Wetness												Stopped by stones.
31	I	3a	Wetness												
31	I	3a	Wetness												
31	I	3a	Wetness												Grit/gravel
31	I	3a	Wetness												Poss hcl
32	IV	3b	Groundwater			18.4	5.9	9	58	27	0.651	11.7	17.9	O-SCL	
32	IV	3b	Groundwater			3.7	6.2	6.6	23.4	21	0.143	2.08	14.5	SCL	
32	IV	3b	Groundwater												Waterlogged from 90cm. Occ sand pocket.
33	IV	3b	Groundwater												v few sm ang hd stones
33	IV	3b	Groundwater												v few sm & med ang hd stones
33	IV	3b	Groundwater												Mix of sandy textures ;sc,scl, sand. Com 75yr58 mottles. Wet from 80cm.
33	IV	3b	Groundwater												Groundwater affected.
34	V	4	Wetness			18.6	5.3	4.4	24.5	38	0.659	10.1	15.4		Faint common 7.5yr 5/8 mottling
34	V	4	Wetness			13.6	6.3	<2.5	23.4	54	0.493	6.99	14.2		
34	V	4	Wetness												Saturated scl in places
35	II	3b	Wetness												
35	II	3b	Wetness												
35	II	3b	Wetness												
36	III	3b	Wetness			13.8	5.8	22.4	43.9	79.2	0.54	7.55	14		Organic
36	III	3b	Wetness			4.1	5.8	5.8	87.4	65.5	0.117	1.92	16.4		sandy
36	III	3b	Wetness												
38	III	3b	Wetness			6.8	6.2	33.8	50	79.9	0.262	4.43	16.9		Organic
38	III	3b	Wetness			3.3	6.7	8.2	31.6	40	0.086	1.7	19.7		Perched water table at 70cm
38	III	3b	Wetness												Disturbed
39	III	3b	Wetness												
39	III	3b	Wetness												
39	III	3b	Wetness												Disturbed
40	III	3b	Wetness			6.2	7.3	18.6	37.5	55.4	0.206	3.81	18.5		
40	III	3b	Wetness			3	7.7	5.8	38.7	64.2	0.074	1.69	22.9		
40	III	3b	Wetness												
40	III	3b	Wetness												
42	III	3b	Wetness			5.2	7.7	7.8	34.5	34	0.158	3.26	20.7		
42	III	3b	Wetness			3	7.7	2.8	37	50	0.064	1.17	18.3		
42	III	3b	Wetness												
42	III	3b	Wetness												
41	IV	3b	Wetness												
41	IV	3b	Wetness												
41	IV	3b	Wetness												
41	IV	3b	Wetness												
37	I	3a	Wetness												Organic
37	I	3a	Wetness												Water table @80cm
37	I	3a	Wetness												
45	III	3b	Wetness			7.6	7.3	4.4	82.6	103	0.252	4.92	19.5		Perched water table @40 cm
45	III	3b	Wetness			3.2	7.9	2.6	59.2	94.3	0.085	2.1	24.7		
45	III	3b	Wetness												
47	III	3b	Wetness	Gradient		6.5	7.4	<2.5	49.2	119	0.228	4.01	17.6		Water table @20cm
47	III	3b	Wetness	Gradient		3.1	7.8	<2.5	68.5	131	0.089	2.06	23.1		Compact
47	III	3b	Wetness	Gradient											
46	III	3b	Wetness												Mound next to point
46	III	3b	Wetness												
46	III	3b	Wetness												
44	III	3b	Wetness												Water table @20cm
44	III	3b	Wetness												
43	IV	4	Gradient	Groundwater		4	7.7	3.6	67.7	78.3	0.115	2.39	20.8		Slope 18
43	IV	4	Gradient	Groundwater		2.5	8.1	4.6	73.7	106	0.066	1.84	27.8		Iron sulphide @90cm



## APPENDIX 4 – LABORATORY ANALYSIS

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**ANALYTICAL REPORT**

<b>Report Number</b>	79645-21	K744	JOHN ADAMS	Client 1010807
<b>Date Received</b>	09-DEC-2021		RSK ADAS LTD	M62 SINISTER ISLAND
<b>Date Reported</b>	17-DEC-2021		UNIT1 RUBICON SQUARE	SOIL 03-12-2021
<b>Project</b>	SOIL		4205 PARK APPROACH	
<b>Reference</b>	M62 SINISTER ISLAND		THORPE PARK	
<b>Order Number</b>	1010807		LEEDS LS15 8GB	

Laboratory Reference		SOIL538308	SOIL538309							
Sample Reference		S47TS	S47USS							
Determinand	Unit	SOIL	SOIL							
pH water [1:2.5]		7.4	7.8							
Available Phosphorus (Index)	mg/l	<2.5 (0)	<2.5 (0)							
Available Potassium (Index)	mg/l	49.2 (0)	68.5 (1)							
Available Magnesium (Index)	mg/l	119 (3)	131 (3)							
Organic Matter LOI	% w/w	6.5	3.1							
Total Nitrogen	% w/w	0.228	0.089							
Total Carbon	% w/w	4.01	2.06							
Carbon:Nitrogen Ratio	:1	17.6	23.1							

**Notes**

Analysis Notes      The sample submitted was of adequate size to complete all analysis requested.  
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**ANALYTICAL REPORT**

<b>Report Number</b>	<b>69288-21</b>	<b>K744</b>	<b>JOHN ADAMS</b>	<b>Client</b>	<b>COSTAIN</b>
<b>Date Received</b>	<b>24-SEP-2021</b>		<b>RSK ADAS LTD</b>		<b>M62 SIMISTER ISAND</b>
<b>Date Reported</b>	<b>04-OCT-2021</b>		<b>UNIT1 RUBICON SQUARE</b>		
<b>Project</b>	<b>SOIL</b>		<b>4205 PARK APPROACH</b>		
<b>Reference</b>	<b>COSTAIN M62</b>		<b>THORPE PARK</b>		
<b>Order Number</b>			<b>LEEDS LS15 8GB</b>		

Laboratory Reference		SOIL528462	SOIL528463	SOIL528464	SOIL528465	SOIL528466	SOIL528467	SOIL528468	SOIL528469	SOIL528470	SOIL528471
Sample Reference		4 TS	4 USS	6 TS	6 USS	8 TS	8 USS	10 TS	10 USS	24 TS	24 USS
Determinand	Unit	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
pH water [1:2.5]		7.1	7.2	7.0	7.1	7.1	7.6	7.0	7.2	5.9	6.5
Available Phosphorus (Index)	mg/l	2.6 (0)	4.8 (0)	5.2 (0)	5.4 (0)	22.0 (2)	14.4 (1)	19.0 (2)	6.2 (0)	11.4 (1)	4.2 (0)
Available Potassium (Index)	mg/l	<15 (0)	<15 (0)	25.0 (0)	28.6 (0)	<15 (0)	38.3 (0)	<15 (0)	52.8 (0)	23.0 (0)	18.2 (0)
Available Magnesium (Index)	mg/l	79.1 (2)	96.1 (2)	173 (3)	186 (4)	43.3 (1)	48.7 (1)	35.9 (1)	48.8 (1)	38.7 (1)	52.7 (2)
Organic Matter LOI	% w/w	6.7	4.7	8.5	7.4	8.2	2.4	7.9	3.9	6.6	2.7
Total Nitrogen	% w/w	3.39	2.93	0.342	0.278	0.312	0.071	0.302	0.115	0.241	0.095
Total Carbon	% w/w	0.26	0.20	4.71	4.47	4.83	0.78	4.93	1.76	3.84	1.77
Carbon:Nitrogen Ratio	:1	0.1	0.1	13.8	16.1	15.5	11.0	16.3	15.3	15.9	18.6

**Notes**

Analysis Notes      The sample submitted was of adequate size to complete all analysis requested.  
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**ANALYTICAL REPORT**

<b>Report Number</b>	<b>69289-21</b>	<b>K744</b>	<b>JOHN ADAMS</b>	<b>Client</b>	<b>COSTAIN</b>
<b>Date Received</b>	<b>24-SEP-2021</b>		<b>RSK ADAS LTD</b>		<b>M62 SIMISTER ISLAND</b>
<b>Date Reported</b>	<b>04-OCT-2021</b>		<b>UNIT1 RUBICON SQUARE</b>		
<b>Project</b>	<b>SOIL</b>		<b>4205 PARK APPROACH</b>		
<b>Reference</b>	<b>COSTAIN M62</b>		<b>THORPE PARK</b>		
<b>Order Number</b>			<b>LEEDS LS15 8GB</b>		

Laboratory Reference		SOIL528472	SOIL528473	SOIL528474	SOIL528475	SOIL528476	SOIL528477	SOIL528478	SOIL528479		
Sample Reference		25 TS	25 USS	27 TS	27 USS	29 TS	29 USS	30 TS	30 USS		
Determinand	Unit	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		
pH water [1:2.5]		5.8	7.9	6.0	6.1	6.9	8.0	5.7	6.1		
Available Phosphorus (Index)	mg/l	12.4 (1)	6.0 (0)	6.0 (0)	41.2 (3)	8.6 (0)	5.6 (0)	5.8 (0)	3.8 (0)		
Available Potassium (Index)	mg/l	17.7 (0)	40.3 (0)	17.7 (0)	<15 (0)	44.3 (0)	61.3 (1)	21.8 (0)	<15 (0)		
Available Magnesium (Index)	mg/l	39.0 (1)	71.2 (2)	50.1 (1)	15.4 (0)	99.3 (2)	174 (3)	87.2 (2)	50.8 (2)		
Organic Matter LOI	% w/w	6.3	2.9	11.5	2.5	10.3	2.0	14.0	2.7		
Total Nitrogen	% w/w	0.206	0.095	0.367	0.077	0.371	0.084	0.421	0.095		
Total Carbon	% w/w	3.77	2.11	6.89	1.31	5.66	1.51	8.24	1.62		
Carbon:Nitrogen Ratio	:1	18.3	22.2	18.8	17.0	15.2	18.0	19.6	17.0		

<b>Notes</b>	
Analysis Notes	The sample submitted was of adequate size to complete all analysis requested. The results as reported relate only to the item(s) submitted for testing. The results are presented on a dry matter basis unless otherwise stipulated.
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**ANALYTICAL REPORT**

<b>Report Number</b>	<b>69290-21</b>	<b>K744</b>	<b>JOHN ADAMS</b>	<b>Client COSTAIN</b>
<b>Date Received</b>	<b>24-SEP-2021</b>		<b>RSK ADAS LTD</b>	<b>M62 SIMISTER ISLAND</b>
<b>Date Reported</b>	<b>04-OCT-2021</b>		<b>UNIT1 RUBICON SQUARE</b>	
<b>Project</b>	<b>SOIL</b>		<b>4205 PARK APPROACH</b>	
<b>Reference</b>	<b>COSTAIN M62</b>		<b>THORPE PARK</b>	
<b>Order Number</b>			<b>LEEDS LS15 8GB</b>	

Laboratory Reference		SOIL528480	SOIL528481	SOIL528482	SOIL528483						
Sample Reference		34 TS	34 USS	36 TS	36 USS						
Determinand	Unit	SOIL	SOIL	SOIL	SOIL						
pH water [1:2.5]		5.3	6.3	5.8	5.8						
Available Phosphorus (Index)	mg/l	4.4 (0)	<2.5 (0)	22.4 (2)	5.8 (0)						
Available Potassium (Index)	mg/l	24.5 (0)	23.4 (0)	43.9 (0)	87.4 (1)						
Available Magnesium (Index)	mg/l	38.0 (1)	54.0 (2)	79.2 (2)	65.5 (2)						
Organic Matter LOI	% w/w	18.6	13.6	13.8	4.1						
Total Nitrogen	% w/w	0.659	0.493	0.540	0.117						
Total Carbon	% w/w	10.1	6.99	7.55	1.92						
Carbon:Nitrogen Ratio	:1	15.4	14.2	14.0	16.4						

**Notes**

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**ANALYTICAL REPORT**

<b>Report Number</b>	69341-21	<b>K744</b>	<b>JOHN ADAMS</b>	<b>Client</b>	<b>COSTAIN</b>
<b>Date Received</b>	24-SEP-2021		<b>RSK ADAS LTD</b>		<b>M62 SIMISTER ISLAND</b>
<b>Date Reported</b>	04-OCT-2021		<b>UNIT1 RUBICON SQUARE</b>		
<b>Project</b>	<b>SOIL</b>		<b>4205 PARK APPROACH</b>		
<b>Reference</b>	<b>COSTAIN M62</b>		<b>THORPE PARK</b>		
<b>Order Number</b>			<b>LEEDS LS15 8GB</b>		

Laboratory Reference		SOIL528542	SOIL528543							
Sample Reference		32 TS	32 USS							
Determinand	Unit	SOIL	SOIL							
pH water [1:2.5]		5.9	6.2							
Available Phosphorus (Index)	mg/l	9.0 (0)	6.6 (0)							
Available Potassium (Index)	mg/l	58.0 (0)	23.4 (0)							
Available Magnesium (Index)	mg/l	48.6 (1)	18.6 (0)							
Sand 2.00-0.063mm	% w/w	51	58							
Silt 0.063-0.002mm	% w/w	22	21							
Clay <0.002mm	% w/w	27	21							
Organic Matter LOI	% w/w	18.4	3.7							
Total Nitrogen	% w/w	0.651	0.143							
Total Carbon	% w/w	11.7	2.08							
Carbon:Nitrogen Ratio	:1	17.9	14.5							
Textural Class **		O-SCL	SCL							

**Notes**

Analysis Notes      The sample submitted was of adequate size to complete all analysis requested.  
                                  The results as reported relate only to the item(s) submitted for testing.  
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ANALYTICAL NOTES

Report Number	69341-21	K744	JOHN ADAMS	Client	COSTAIN
Date Received	24-SEP-2021		RSK ADAS LTD		M62 SIMISTER ISLAND
Date Reported	04-OCT-2021		UNIT1 RUBICON SQUARE		
Project	SOIL		4205 PARK APPROACH		
Reference	COSTAIN M62		THORPE PARK		
Order Number			LEEDS LS15 8GB		

Notes

Reported by

\*\* Please see the attached document for the definition of textural classes.

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## ADAS (UK) Textural Class Abbreviations

The texture classes are denoted by the following abbreviations:

<b>Class</b>	<b>Code</b>
Sand	S
Loamy sand	LS
Sandy loam	SL
Sandy Silt loam	SZL
Silt loam	ZL
Sandy clay loam	SCL
Clay loam	CL
Silt clay loam	ZCL
Clay	C
Silty clay	ZC
Sandy clay	SC

For the *sand*, *loamy sand*, *sandy loam* and *sandy silt loam* classes the predominant size of sand fraction may be indicated by the use of prefixes, thus:

vf	Very Fine (more than 2/3's of sand less than 0.106 mm)
f	Fine (more than 2/3's of sand less than 0.212 mm)
c	Coarse (more than 1/3 of sand greater than 0.6 mm)
m	Medium (less than 2/3's fine sand and less than 1/3 coarse sand).

The subdivisions of *clay loam* and *silty clay loam* classes according to clay content are indicated as follows:

M	medium (less than 27% clay)
H	heavy (27-35% clay)

Organic soils i.e. those with an organic matter greater than 10% will be preceded with a letter O.

Peaty soils i.e. those with an organic matter greater than 20% will be preceded with a letter P.





**ANALYTICAL REPORT**

<b>Report Number</b>	<b>73418-21</b>	<b>K744</b>	<b>JOHN ADAMS</b>	<b>Client 1010807</b>
<b>Date Received</b>	<b>22-OCT-2021</b>		<b>RSK ADAS LTD</b>	<b>COSTAIN M62</b>
<b>Date Reported</b>	<b>02-NOV-2021</b>		<b>UNIT1 RUBICON SQUARE</b>	<b>SIMISTER ISLAND</b>
<b>Project</b>	<b>1010807 COSTAIN M62</b>		<b>4205 PARK APPROACH</b>	<b>SOIL 15-10-21</b>
<b>Reference</b>	<b>SIMISTER ISLAND</b>		<b>THORPE PARK</b>	
<b>Order Number</b>	<b>1010807</b>		<b>LEEDS LS15 8GB</b>	

Laboratory Reference		SOIL532373	SOIL532374	SOIL532375	SOIL532376	SOIL532377				
Sample Reference		SS13TS	SS13USS	SS13T5	SS15USS	SS17TS				
Determinand	Unit	SOIL	SOIL	SOIL	SOIL	SOIL				
pH water [1:2.5]		5.6	8.5	7.9	6.7	5.3				
Available Phosphorus (Index)	mg/l	14.2 (1)	7.4 (0)	8.2 (0)	7.4 (0)	25.4 (2)				
Available Potassium (Index)	mg/l	160 (2-)	50.3 (0)	39.9 (0)	40.3 (0)	97.9 (1)				
Available Magnesium (Index)	mg/l	77.9 (2)	59.4 (2)	80.5 (2)	45.1 (1)	82.3 (2)				
Organic Matter LOI	% w/w	11.2	3.6	8.7	9.0	17.5				
Total Nitrogen	% w/w	0.414	0.092	0.298	0.232	0.494				
Total Carbon	% w/w	6.41	2.49	4.90	5.93	10.1				
Carbon:Nitrogen Ratio	:1	15.5	27.1	16.4	25.6	20.4				

**Notes**

Analysis Notes      The sample submitted was of adequate size to complete all analysis requested.  
 The results as reported relate only to the item(s) submitted for testing.  
 The results are presented on a dry matter basis unless otherwise stipulated.

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**ANALYTICAL REPORT**

<b>Report Number</b>	<b>73794-21</b>	<b>K744</b>	<b>JOHN ADAMS</b>	<b>Client 1010807</b>
<b>Date Received</b>	<b>26-OCT-2021</b>		<b>RSK ADAS LTD</b>	<b>COSTAIN M62</b>
<b>Date Reported</b>	<b>02-NOV-2021</b>		<b>UNIT1 RUBICON SQUARE</b>	<b>SIMISTER ISLAND</b>
<b>Project</b>	<b>1010807 COSTAIN M62</b>		<b>4205 PARK APPROACH</b>	<b>SOIL 15-10-21</b>
<b>Reference</b>	<b>SIMISTER ISLAND</b>		<b>THORPE PARK</b>	
<b>Order Number</b>	<b>1010807</b>		<b>LEEDS LS15 8GB</b>	

<b>Laboratory Reference</b>		<b>SOIL532806</b>								
<b>Sample Reference</b>		<b>SS19USS</b>								
<b>Determinand</b>	<b>Unit</b>	<b>SOIL</b>								
pH water [1:2.5]		8.0								
Available Phosphorus (Index)	mg/l	6.6 (0)								
Available Potassium (Index)	mg/l	23.0 (0)								
Available Magnesium (Index)	mg/l	50.2 (1)								
Sand 2.00-0.063mm	% w/w	70								
Silt 0.063-0.002mm	% w/w	24								
Clay <0.002mm	% w/w	6								
Organic Matter LOI	% w/w	2.6								
Total Nitrogen	% w/w	0.059								
Total Carbon	% w/w	1.68								
Carbon:Nitrogen Ratio	:1	28.5								
Textural Class **		SL								

**Notes**

Analysis Notes      The sample submitted was of adequate size to complete all analysis requested.  
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                                  The results are presented on a dry matter basis unless otherwise stipulated.

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ANALYTICAL NOTES

Report Number	73794-21	K744	JOHN ADAMS	Client	1010807
Date Received	26-OCT-2021		RSK ADAS LTD		COSTAIN M62
Date Reported	02-NOV-2021		UNIT1 RUBICON SQUARE		SIMISTER ISLAND
Project	1010807 COSTAIN M62		4205 PARK APPROACH		SOIL 15-10-21
Reference	SIMISTER ISLAND		THORPE PARK		
Order Number	1010807		LEEDS LS15 8GB		

Notes

Reported by

\*\* Please see the attached document for the definition of textural classes.

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Peaty soils i.e. those with an organic matter greater than 20% will be preceded with a letter P.



**ANALYTICAL REPORT**

<b>Report Number</b>	<b>73882-21</b>	<b>K744</b>	<b>JOHN ADAMS</b>	<b>Client 1010807</b>
<b>Date Received</b>	<b>26-OCT-2021</b>		<b>RSK ADAS LTD</b>	<b>COSTAIN M62</b>
<b>Date Reported</b>	<b>03-NOV-2021</b>		<b>UNIT1 RUBICON SQUARE</b>	<b>SIMISTER ISLAND</b>
<b>Project</b>	<b>1010807 COSTAIN M62</b>		<b>4205 PARK APPROACH</b>	<b>SOIL 15-10-21</b>
<b>Reference</b>	<b>SIMISTER ISLAND</b>		<b>THORPE PARK</b>	
<b>Order Number</b>	<b>1010807</b>		<b>LEEDS LS15 8GB</b>	

Laboratory Reference		SOIL532946	SOIL532947	SOIL532948	SOIL532949						
Sample Reference		SS17USS	SS19TS	SS21TS	SS21USS						
Determinand	Unit	SOIL	SOIL	SOIL	SOIL						
pH water [1:2.5]		4.9	5.8	5.7	6.0						
Available Phosphorus (Index)	mg/l	9.6 (1)	8.2 (0)	6.8 (0)	8.0 (0)						
Available Potassium (Index)	mg/l	63.6 (1)	59.6 (0)	50.0 (0)	18.6 (0)						
Available Magnesium (Index)	mg/l	65.9 (2)	51.8 (2)	37.3 (1)	23.7 (0)						
Organic Matter LOI	% w/w	36.9	6.3	12.5	9.7						
Total Nitrogen	% w/w	0.658	0.213	0.353	0.190						
Total Carbon	% w/w	19.8	3.81	7.15	6.22						
Carbon:Nitrogen Ratio	:1	30.1	17.9	20.3	32.7						

**Notes**

Analysis Notes      The sample submitted was of adequate size to complete all analysis requested.  
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**ANALYTICAL REPORT**

<b>Report Number</b>	<b>79644-21</b>	<b>K744</b>	<b>JOHN ADAMS</b>	<b>Client 1010807</b>
<b>Date Received</b>	<b>09-DEC-2021</b>		<b>RSK ADAS LTD</b>	<b>M62 SINISTER ISLAND</b>
<b>Date Reported</b>	<b>17-DEC-2021</b>		<b>UNIT1 RUBICON SQUARE</b>	<b>SOIL 03-12-2021</b>
<b>Project</b>	<b>SOIL</b>		<b>4205 PARK APPROACH</b>	
<b>Reference</b>	<b>M62 SINISTER ISLAND</b>		<b>THORPE PARK</b>	
<b>Order Number</b>	<b>1010807</b>		<b>LEEDS LS15 8GB</b>	

Laboratory Reference		SOIL538298	SOIL538299	SOIL538300	SOIL538301	SOIL538302	SOIL538303	SOIL538304	SOIL538305	SOIL538306	SOIL538307
Sample Reference		S38TS	S38USS	S40TS	S40USS	S42TS	S42USS	S43TS	S43USS	S45TS	S45USS
Determinand	Unit	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
pH water [1:2.5]		6.2	6.7	7.3	7.7	7.7	7.7	7.7	8.1	7.3	7.9
Available Phosphorus (Index)	mg/l	33.8 (3)	8.2 (0)	18.6 (2)	5.8 (0)	7.8 (0)	2.8 (0)	3.6 (0)	4.6 (0)	4.4 (0)	2.6 (0)
Available Potassium (Index)	mg/l	50.0 (0)	31.6 (0)	37.5 (0)	38.7 (0)	34.5 (0)	37.0 (0)	67.7 (1)	73.7 (1)	82.6 (1)	59.2 (0)
Available Magnesium (Index)	mg/l	79.9 (2)	40.0 (1)	55.4 (2)	64.2 (2)	34.0 (1)	50.0 (1)	78.3 (2)	106 (3)	103 (3)	94.3 (2)
Organic Matter LOI	% w/w	6.8	3.3	6.2	3.0	5.2	3.0	4.0	2.5	7.6	3.2
Total Nitrogen	% w/w	0.262	0.086	0.206	0.074	0.158	0.064	0.115	0.066	0.252	0.085
Total Carbon	% w/w	4.43	1.70	3.81	1.69	3.26	1.17	2.39	1.84	4.92	2.10
Carbon:Nitrogen Ratio	:1	16.9	19.7	18.5	22.9	20.7	18.3	20.8	27.8	19.5	24.7

<b>Notes</b>	
Analysis Notes	The sample submitted was of adequate size to complete all analysis requested. The results as reported relate only to the item(s) submitted for testing. The results are presented on a dry matter basis unless otherwise stipulated.
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## APPENDIX 5 – DESCRIPTION OF ALC GRADES

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The ALC grades and subgrades are described below in terms of the types of limitation which can occur, typical cropping range and the expected level and consistency of yield. The ‘*best and most versatile agricultural land*’ falls into grades 1, 2 and subgrade 3a – which collectively comprises about one-third of the agricultural land in England and Wales. About half the land in England and Wales is either of moderate quality (subgrade 3b) or poor quality (grade 4). Although less significant on a national scale, such land can be locally valuable to agriculture and the rural economy where poorer farmland predominates. The remainder is very poor quality land in grade 5, which mostly occurs in the uplands.

### ***Grade 1 – excellent quality agricultural land***

Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

### ***Grade 2 – very good quality agricultural land***

Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

### ***Grade 3 – good to moderate quality land***

Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.

#### ***Subgrade 3a – good quality agricultural land***

Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

#### ***Subgrade 3b – moderate quality agricultural land***

Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of a wider range of crops or high yields of grass which can be grazed or harvested over most of the year.

### ***Grade 4 – poor quality agricultural land***

Land with severe limitations which significantly restrict the range of crops and/or level of yields. It is mainly suited to grass with occasional arable crops (e.g. cereals and forage crops) the yields of which are variable. In moist climates, yields of grass may be moderate to high but there may be difficulties in utilisation. The grade also includes very droughty arable land.

### ***Grade 5 – very poor quality agriculture land***

Land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.