

A47 North Tuddenham to Easton Dualling

Scheme Number: TR010038

Volume 6

6.3 Environmental Statement Appendices **Appendix 9.2 - Agricultural Land Classification**

APFP Regulation 5(2)(a)

Planning Act 2008

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

March 2021

Infrastructure Planning

Planning Act 2008

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

The A47 North Tuddenham to Easton
Development Consent Order 202[x]

ENVIRONMENTAL STATEMENT APPENDICES
Appendix 9.2 - Agricultural Land Classification

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North Tuddenham, A47

September 2020

ADAS GENERAL NOTES

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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

An agricultural land classification survey has been undertaken of 285.1 ha of land along approximately 8.5 km of the A47 in Norfolk; between North Tuddenham to the west and Easton to the east.

The survey identified a variable landscape of freely-draining fine and coarse loamy soils, with some coarse loamy over sandy soils; moderately freely-draining fine loamy and fine and coarse loamy over clayey soils; imperfectly-draining fine and coarse loamy over clayey soils; and groundwater affected peaty and organic mineral soils. These soils form agricultural land of grade 2, subgrade 3a, subgrade 3b and grade 4 quality. The principal limitations to agriculture across the site are soil wetness and soil droughtiness.

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1 INTRODUCTION

ADAS have been instructed by Sweco to undertake an agricultural land classification survey. This report provides information on the soils and agricultural quality of 285.1 ha of land along approximately 9km of the A47 in Norfolk; between North Tuddenham to the west and Easton to the east. The report is based on a survey of the land carried out in June and August 2020.

1.1 Site Environment

The land surveyed is located to the north and south of the A47 along approximately 8.5 km of carriageway. The western edge of the survey area is between North Tuddenham and Hockering. The eastern edge of the survey area is marked by the roundabout on the western edge of Easton.

The survey area is largely comprised of agricultural fields immediately adjacent to the existing A47 carriageway. In some areas, particularly in the east, the survey area is wider and covers further adjoining agricultural fields.

The River Tud winds through the survey area, from west to east. Bordering the River are a number of small woodlands and less intensively managed agricultural land.

The land is level (0-1°) to gently (2-3°) and moderately (4-7°) sloping. The land lies at between 25 m and 50 m AOD.

1.2 Agricultural Use

At the time of survey the agricultural land of the survey area was a combination of grazed grassland, winter cereals, oilseed rape, root crops and maize. Some land closest to the River Tud was in use as rough grazing.

1.3 Published Information

1.3.1 Geology

1:50,000 scale BGS information¹ records the basal geology of the survey area as undifferentiated Cretaceous chalk. The chalk is shown to be overlain in most areas by glacial till of the Lowerstoft Formation. Alluvial deposits, comprised of clay, silt, sand, and gravel, are shown along the margins of the River Tud. Sand and gravel deposits of the Sherringham Cliffs Formation and Lowerstoft Formation are shown sporadically elsewhere.

1.3.2 Soils

The national soil map, published at 1:250,000 scale, records the majority of the survey area as belonging to the Burlingham 1 soil association. Land bordering the River Tud is recorded as belonging to the Isleham 2 association and the Newport 4 association is recorded in the very far east of the survey area.

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

The Burlingham association is described as an association of deep coarse and fine loamy soils with slowly permeable subsoils and slight seasonal waterlogging, and some deep well drained coarse loamy and sandy soils. These soils are described as being formed in chalky till and glaciofluvial drift.

The Iselham 2 association is described as an association of deep permeable sandy and peaty soils affected by groundwater, with a very complex soil pattern influenced by locally variable topography. These soils are described as being formed in glaciofluvial drift and peat.

The Newport 4 association is described as an association of deep well drained sandy soils formed in glaciofluvial drift².

1.3.3 Previous Agricultural Land Classification

No detailed post-1988 agricultural land classification is publically available for this site. However, the provisional ALC map, published at 1:250,000 scale prior to the revision and subdivision of grade 3 in 1988, records the land as being predominantly of grade 3 quality³. Along the River Tud the land is recorded as being of grade 4 quality. Some grade 2 quality land is recorded on the margins of the survey area.

² Ragg J.M. et al., 1984. *Soils and their use in Eastern England*. Soil Survey of England and Wales, Harpenden.

³ Defra, 2019. *Interactive map of Great Britain*. Online resource: <https://magic.defra.gov.uk/MagicMap.aspx>

2 METHODOLOGY

A detailed soil survey was carried out in June and August 2020. The survey was based on observations at intersects of a 100 m grid, giving a sampling density of at least one observation per hectare. 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 Annex 1. A map showing the location of each observation point is attached to this report as Annex 2 (Map 1).

The 'DCO boundary' of the project altered after the field work had been undertaken. This alteration reduced the proposed land take of the project. Consequently a number of soil augers and soil pits are located outside this revised boundary. The data associated with these observations has been retained within the report to support the conclusions drawn.

Soil samples were taken representative of the top 25 cm of the soil profile and these were submitted to NRM for laboratory particle size distribution (PSD) analysis. Full details of the analysis is included in Annex 4.

3 SOILS

3.1 Soil Types

The soils vary considerably across the survey area. The parent material on which these soils are formed can vary considerably over short distances, and as a consequence there can be considerable variation in soil characteristics over short distances. The soils vary in texture, drainage, stoniness and colour. The soils are also variably calcareous, with many non-calcareous profiles and some very calcareous profiles where chalky clay is encountered.

The principal soil types include permeable freely-draining fine and coarse loamy soils; some permeable freely-draining coarse loamy over sandy soils; slowly permeable moderately freely-draining fine loamy and fine and coarse loamy over clayey soils; slowly permeable imperfectly-draining fine and coarse loamy over clayey soils; and poorly to very poorly-draining groundwater affected peaty and organic mineral soils. These soil types are described below.

3.1.1 Freely-draining loamy soils

These soils are characterised by permeable sandy clay loams and medium sandy loams. The lower subsoil is at times coarser-textured than this, with loamy medium sands and medium sands. The subsoil is slightly stony in places, with angular flints or gravel typical. Typically these soils are non-calcareous throughout the profile.

An example soil profile is described below from the pit at observation 94 (see Map1).

0-35 cm	Dark brown (10 YR 3/3) sandy clay loam; 3% small to medium hard angular stones; granular structure; very firm; non-calcareous; common fine fibrous roots to 30 cm; wavy diffuse boundary to:
35-50 cm	Dark yellowish brown (10 YR 3/4) medium sandy loam; 5% small to medium hard angular stones; granular structure; very firm; non-calcareous; no visible roots; diffuse irregular boundary to:
50-100 cm	Dark yellowish brown (10 YR 3/6) loamy medium sand; 2% small to medium hard angular stones; granular structure; very firm; non-calcareous; no visible roots; diffuse irregular boundary to:
100-120 cm	Dark yellowish brown (10 YR 4/6) medium sandy loam; stoneless; granular structure; very firm; non-calcareous.

An example soil profile is described below from the pit at observation 260A (see Map1).

0-30 cm	Dark brown (10 YR 3/3) medium sandy loam; < 5% small and medium hard angular stones; weakly developed fine to medium subangular blocky structure; firm to very firm; non-calcareous; common fine fibrous roots; smooth clear boundary to:
30-55 cm	Brown (7.5 YR 4/3) medium sandy loam; < 5% small and medium hard angular stones; weakly developed medium to coarse subangular blocky structure; more than 2% macropores; firm to very firm; non-calcareous; a few fine fibrous roots; smooth gradual boundary to:
55-80 cm	Brown (7.5 YR 4/3) sandy clay loam with brown (7.5 YR 5/3) ped faces; 15% medium hard angular stones; weakly developed medium to coarse subangular blocky structure; very firm; more than 1% macropores; smooth gradual boundary to:
80-90+ cm	Brown (7.5 YR 4/3) sandy clay loam with common strong brown (7.5 YR 5/6) mottles; 10% medium hard angular stones.

These soils are freely-draining and belong to soil wetness class I. They have a high capacity to absorb excess winter rainfall.

3.1.2 Moderately freely-draining loamy and loamy over clayey soils

These soils are characterised by permeable sandy clay loam, clay loam and medium sandy loam upper horizons overlying poorly-structured slowly permeable sandy clay loam, clay loam, clay or sandy clay lower subsoil. These soils are gleyed⁴ within 70 cm depth but not within 40 cm depth. These soils are slowly permeable within 80 cm depth but typically around 50 to 60 cm depth. These soils are variably calcareous.

An example soil profile is described below from the pit at observation 27 (see Map 1).

0-38 cm	Dark yellowish brown (10 YR 3/4) sandy clay loam; 5% small to medium hard angular stones; weakly developed medium subangular blocky structure; friable; non-calcareous; many medium fibrous roots; more than 0.5% macropores; clear smooth boundary to:
38-48 cm	Dark yellowish brown (10 YR 3/6) sandy clay loam; 5% small to medium hard angular stones; moderately developed medium subangular blocky structure; firm; non-calcareous; few very fine fibrous roots; <0.5% macropores; clear wavy boundary to:
48-120 cm	Dark yellowish brown (10 YR 4/6) clay with brown (10 YR 5/3) ped faces and common clear strong brown (7.5 YR 5/8) mottles; 8 % medium hard angular stones; moderately developed coarse angular blocky structure; many ferrimanganiferous concentrations; firm; non-calcareous.

These soils are moderately freely-draining and belong to soil wetness class II. They have a moderate capacity to absorb excess winter rainfall.

3.1.3 Imperfectly-draining loamy over clayey soils

These soils are characterised by permeable sandy clay loam, clay loam and medium sandy loam upper horizons overlying poorly-structured slowly permeable clay or sandy clay lower subsoil. These soils are gleyed within 40 cm depth. These soils are slowly permeable within 60 cm depth but typically are slowly permeable at shallower depth, with slowly permeable clay commonly found within 40 cm depth. These soils are variably calcareous, with chalky boulder clay subsoil not uncommon.

An example soil profile is described below from the pit at observation 131A (see Map 1)

0-25 cm	Very dark greyish brown (10 YR 3/2) sandy loam; <5% small to medium hard angular stones; weakly developed coarse angular blocky structure; firm; non-calcareous; a few very fine fibrous roots; smooth clear boundary to:
25-35 cm	Very dark grey (10 Y 3/1) and dark grey (10 YR 4/1) sandy clay loam with common medium dark yellowish brown (10 YR 3/4 and 10 YR 3/6) mottles; <5% small to medium hard angular stones; moderately developed coarse angular blocky structure; firm; non-calcareous; a few very fine fibrous roots; <0.5% macropores; clear smooth boundary to:
35-60 cm	Light olive brown (2.5 Y 5/3) clay with greyish brown (2.5 Y 5/2) ped faces and many fine strong brown (7.5 YR 5/6) mottles; <5% small to medium hard angular stones;

⁴ Gleying is a greyish and ochreous colouring of the soil caused by periodic or permanent waterlogging.

weakly developed very coarse prismatic structure; firm; non-calcareous; no visible roots; <0.5% macropores; smooth gradual boundary to:

60-80+ cm Greyish brown (2.5 Y 5/2) clay with common yellowish brown (10 YR 5/6) mottles and many ferrimanganiferous concretions; stoneless; massive structure; very firm; non-calcareous; no visible roots; <0.5% macropores.

These soils are imperfectly-draining and belong to soil wetness class III. They have a moderate capacity to absorb excess winter rainfall.

3.1.4 Groundwater affected peaty and organic mineral soils

These soils are limited to low lying land bordering the River Tud. These soils are complex and vary significantly over short distances, in accordance with slight changes in topography and therefore soil moisture regime. These soils are characterised by grey or greyish organic clay loam, organic silty clay loam, organic silty clay and organic clay, and black humified peaty horizons. These soils are affected by high groundwater. Pumped drainage is not in affect and these soils are drained by ditches into the River. These soils stand wet at shallow depth for long periods of the year.

An example soil profile is described below from the pit at observation 165 (see Map 1)

0-9 cm	Very dark greyish brown (10 YR 3/2) peaty clay; stoneless; moderately developed medium subangular blocky structure; friable; non-calcareous; many fine fibrous roots and common medium fleshy roots; smooth clear boundary to:
9-20 cm	Dark grey (10 Y 4/1) organic clay with many coarse strong brown (7.5 YR 5/8) mottles; stoneless; moderately developed coarse to very coarse columnar structure; friable; non-calcareous; common fine fibrous roots and common medium fleshy roots; > 0.5% macropores; clear wavy boundary to:
20-30 cm	Dark grey (10 Y 4/1) heavy silty clay loam with common medium strong brown (7.5 YR 5/8 and 7.5 YR 3/4) mottles; stoneless; moderately developed coarse to very coarse columnar structure; friable; non-calcareous; few fine fibrous roots and common medium fleshy roots; > 0.5% macropores; clear smooth boundary to:
30-100 cm	Black (10 YR 2/1) humified peat; stoneless; friable. Standing water from 56 cm depth from the surface

These soils are poorly to very poorly-draining, they belong to wetness class IV and V. They have a low capacity to absorb excess winter rainfall.

3.2 Laboratory Analysis

Samples representative of the top 25 cm of the soil profile were taken and submitted to NRM Laboratories for particle size distribution analysis. The textures are confirmed as the below in Table 3.2.

Table 3.2 Topsoil PSD texture analysis

Observation	Texture	Abbreviation
7	Sandy loam	SL
21	Sandy loam	SL
27	Sandy loam	SL
94	Sandy loam	SL
114	Heavy clay loam	HCL
125	Sandy clay loam	SCL
131	Sandy loam	SL
160	Sandy clay loam	SCL
161	Sandy loam	SL
165: 0-10 cm	Peaty clay	Pty C
165: 10-20 cm	Organic clay	Org C
215	Sandy loam	SL
229	Sandy loam	SL
233	Sandy clay loam	SCL
260	Sandy loam	SL

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 Annex 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 Classification⁵.

The site is linear and spans approximately 8.5 m, as such ten points along the route were used to give relevant data. The maximum and minimum agro-climatic values used are given in Table 4.1.

Table 4.1: Agro-climatic variables

	Minimum	Maximum
Altitude (AOD)	25 m	50 m
Average Annual Rainfall (AAR)	608 mm	637 mm
January-June Accumulated Temperature (ATO)	1374 day °C	1402 day °C
Field Capacity Days (FCD)	121	125
Moisture Deficit Wheat (MDW)	114 mm	120 mm
Moisture Deficit Potatoes (MWP)	111 mm	117 mm
Climate (upper grade limit)	1	1

⁵ Meteorological Office, (1989). *Climatological Data for Agricultural Land Classification*.

The site is located in the East of England and has no agro-climatic limitation to agriculture.

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)⁶.

This report has identified agricultural land of grade 2, subgrade 3a, subgrade 3b and grade 4 quality. The principal limitations to agricultural are soil droughtiness and soil wetness.

Grade 1

No land of this quality has been mapped.

Grade 2

There are 54.3 ha of grade 2 land at this site. This land is formed on freely-draining fine and coarse loamy soils, such as those described in section 3.1.1. These soils belong to wetness class I. This land is also formed on some moderately freely-draining fine and coarse loamy soils and fine and coarse loamy over clayey soils, such as those described in section 3.1.2. These soils belong to wetness class II. This land is also formed on some imperfectly-draining fine and coarse loamy over clayey soils, such as those described in section 3.1.3. These soils belong to wetness class III.

The wetness class II soils which form grade 2 land have either light-textured, medium-textured or calcareous heavy-textured clay loam topsoil. The wetness class III soils which form grade 2 land have either light textured or calcareous medium-textured topsoil. Calcareous soil tends to have a better structure than comparable non-calcareous soil. In drier climates this means that calcareous topsoils can be safely cultivated for longer periods of the year than comparable non-calcareous topsoils. As a result, in the ALC system some calcareous soils are graded higher than comparable non-calcareous soils.

The principal limitations to the grade 2 land are droughtiness and soil wetness. Many soils have somewhat limited available soil moisture reserves and as a consequence, under the dry local climate, there is a minor limitation to average crop yields. Most notably in drier years. Many soils have impeded subsoil drainage and as a consequence there is a minor limitation to the flexibility and success of cultivations and harvest. Most notably in wetter years. However, this remains very good quality agricultural land and a wide range of arable, horticultural and vegetable crops could be grown.

Subgrade 3a

There are 133.0 ha of subgrade 3a land at this site. This land is formed on some freely-draining coarse loamy over sandy soils, such as those described in section 3.1.1. These soils belong to wetness class I. This land is also formed on some moderately freely-draining fine and coarse loamy soils and fine and coarse loamy over clayey soils, such as those described in section 3.1.2. These soils belong to wetness class II. This land is also formed on some

⁶ MAFF, (1988). *Agricultural Land Classification for England and Wales: Revised Guidelines and Criteria for Grading the Quality of Agricultural Land*.

imperfectly-draining fine and coarse loamy over clayey soils, such as those described in section 3.1.3. These soils belong to wetness class III.

The wetness class II soils which form subgrade 3a land have light-textured, medium-textured or non-calcareous heavy-textured topsoil. The wetness class III soils which form subgrade 3a land have light-textured, medium-textured or calcareous heavy-textured topsoil.

The principal limitations to the subgrade 3a land are droughtiness and soil wetness. Droughtiness is a principal limitation where soils have poorly-structured fine loamy or clayey subsoil at relatively shallow depth, or sandy subsoil. These soils have limited soil moisture reserves and as a consequence, beneath the dry local climate, there is a moderate limitation to average crop yields. Where soil wetness is a principal limitation there is a moderate limitation on the flexibility and success of cultivations and harvest. However, this remains good quality agricultural land which can achieve moderate to high average yields of cereals or moderate yields of grass, oilseeds, potatoes, sugar beet and some less demanding horticultural crops.

Subgrade 3b

There are 18.4 ha of subgrade 3b land at this site. This land is formed on some imperfectly-draining fine loamy over clayey soils, such as those described in section 3.1.3. These soils belong to wetness class III and have non-calcareous heavy-textured topsoil. The principal limitation to agriculture on such land is soil wetness. Safe opportunities for cultivation are limited to autumn in most years, due to the soils becoming sticky and plastic when wet. Such land is best suited to winter grown cereals, oilseeds and grass, of which moderate yields can be achieved.

Grade 4

There are 8.9 ha of grade 4 land at this site. This land is formed on poorly to very poorly-draining groundwater affected peaty and organic mineral soils such as those described in section 3.1.4. These soils are found on low lying land adjacent to the River Tud. These soils belong to Wetness Classes IV and V and are waterlogged at shallow depth for long periods of the year.

The principal limitation to agriculture on such land is soil wetness. Without pumped drainage, such land has severe limitations which significantly restrict the range and yield of crops. It is mainly suited to grass which may have moderate to high yields, however there may be difficulties in utilisation.

Grade 5

No land of this quality has been mapped.

Non-agricultural

There are 69.0 ha of non-agricultural land at this site. This land accounts for the existing A47 road plus associated roundabouts, laybys and connecting roads. This land also includes residential properties, commercial buildings and wooded areas.

Urban

No land of this quality has been mapped.

4.3 Summary of grade areas

The boundaries between the different grades of land are shown on Map 2, attached to this report as Annex 3. The area occupied by each grade is shown below.

Table 4.3: Grade areas

Grade / subgrade	Total Area (ha)	Total Area (%)	Permanent Loss (ha)	Permanent Loss (%) ^[1]
Grade 1	-	-	-	-
Grade 2	54.3	19.0	18.9	6.6
Subgrade 3a	133.0	46.7	32.2	11.3
Subgrade 3b	18.4	6.5	6.2	2.2
Grade 4	8.9	3.1	0.6	0.2
Grade 5	-	-	-	-
Non-agricultural	69.0	24.2	23.0	8.1
Urban	-	-	-	-
Not surveyed	1.5	0.5	0	0
Total	285.1	100	81.6	28.4

^[1] As percentage of total area.

5 CONCLUSION

An agricultural land classification survey has been undertaken of 285.1 ha of land along approximately 8.5 km of the A47 in Norfolk; between North Tuddenham to the west and Easton to the east.

The survey identified a variable landscape of freely-draining fine and coarse loamy soils, with some coarse loamy over sandy soils; moderately freely-draining fine loamy and fine and coarse loamy over clayey soils; imperfectly-draining fine and coarse loamy over clayey soils; and groundwater affected peaty and organic mineral soils. These soils form agricultural land of grade 2, subgrade 3a, subgrade 3b and grade 4 quality. The principal limitations to agriculture across the site are soil wetness and soil droughtiness.

6 ANNEXES

Annex 1 – Soil Survey Details

Annex 2 – Map 1: Location of Observations

Annex 3 – Map 2: Agricultural Land Classification

Annex 4 – PSD Texture Analysis

Annex 5 – ALC Grades System

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)		
1	Not surveyed - no access granted																
2	Not surveyed - no access granted																
3	Not surveyed - no access granted																
4	Not surveyed - no access granted																
5	Not surveyed - no access granted																
6	0 - 37 37 - 58 58 - 75+	Br Dk Yl Br Dk Yl Br	SCL SCL C	- o x	- no no	non non non	5 3 3	5	0	Stopped too firm	1	I	1	2	2	DR	
7	0 - 16 16 - 40+	Dk Br Br	MSL SCL	- o	- no	non non	10 10	10	0	Stopped on stones	1	-	-	-	-	-	

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
8	0 - 30+	Dk Br	SCL	-	-	non	5	5								0
9	0 - 30 30 - 40+	Br Br	SCL SCL	- x	- no	non	5 10	5	0	Stopped on stones	1	-	-	-	-	-
10	0 - 27 27 - 34 34 - 70 70 - 81+	Dk Gr Br Br Gr Br + Pl Br Li Yl Br + Yl Br	SCL HCL C C	- xxx xxx xxx	- no yes yes	non	5 5 0 10	5	0		1	III	3a	2	3a	WE
11	0 - 36 36 - 60 60 - 73+	V Dk Gr Br Ol Br Li Yl Br	HCL C C	- xxx xxx	- yes yes	non	5 2 1	5	0	Stopped too firm	2	III	3b	2	3b	WE
12	0 - 26 26 - 38 38 - 57 57 - 80+	Br Br Li Yl Br Li Yl Br	HCL HCL C C	- o xxx xxx	- no yes yes	no no yes yes	3 3 10 60	3	0	Stopped too firm	1	III	3b	2	3b	WE
13	0 - 25 25 - 38 38 - 62 62 - 100+	Dk Gr Br Br Yl Br + Br Li Ol Br + Pl Br	MCL HCL C C	- o xxx xxx	- no yes yes	no no yes yes	3 3 3 20	3	0	Stopped too firm	1	III	3a	2	3a	WE
14	0 - 23 23 - 42 42 - 70+	Br Br Dk Yl Br	HCL HCL C	- x xxx	- no yes	no no yes	5 2 1	5	0	FMCs	3	II	3a	2	3a	WE

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
15	0 - 25	Br	MCL	-	-	no	5	5		0	Stopped too firm	1	III	3a	2	3a
	25 - 52	Yl Br + Br	C	xxx	yes	no	5									
	52 - 81+	Li Ol Br	C	xxx	yes	yes	30									
16	0 - 38	Dk Gr Br	SCL	-	-	no	5	5	0	Stopped too firm	3	II	2	2	2	WE/DR
	38 - 52	Dk Yl Br	SC	xx	no	no	2									
	52 - 70+	Yl Br	C	xxx	yes	yes	1									
17	0 - 35	Br	SCL	-	-	no	5	5	0		2	I	1	2	2	DR
	35 - 70	Dk Yl Br	SL	o	no	no	2									
	70 - 90+	Yl Br	SC	xxx	yes	no	1									
18	0 - 39	Dk Br	SCL	-	-	no	5	5	0	Stopped too firm	1	II	2	2	2	WE/DR
	39 - 50	Yl Br	SCL	xxx	no	no	5									
	50 - 65+	Pl Br	C	xxx	yes	yes	2									
19	0 - 37	Dk Gr Br	SCL	-	-	no	3	3	0		1	III	3a	2	3a	WE
	37 - 90+	Pl Br + St Br	C	xxx	yes	yes	0									
20	0 - 35	Dk Br	SCL	-	-	no	5	5	0	Stopped too firm	2	III	3a	3a	3a	WE/DR
	35 - 59	Yl Br	C	xxx	yes		3									
	59 - 65+	Pl Br + St Br	SC	xxx	yes		3									
21	0 - 34	Br	MSL	-	-	no	3	3	0		1	II	1	2	2	WE,DR
	34 - 75	Yl Br + Li Br Gr	SCL	xxx	no		3									
	75 - 90+	Yl Br + Pl Br	SC	xxx	yes		3									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
22	0 - 35	Dk Br	MSL	-	-	no	3	3		0	FMCs Stopped too firm	0	III	2	2	2
	35 - 60	Br	SCL	xxx	no		2									
	60 - 77+	Pl Br + St Br	C	xxx	yes		0									
23	0 - 36	Br	MSL	-	-	no	5	5	0		1	II	2	2	2	WE,DR
	36 - 59	Yl Br + Li Br Gr	SCL	xxx	no		3									
	59 - 83	Yl Br + Pl Br	C	xxx	yes		3									
	83 - 100+	Yl Br	SCL	xxx	no		0									
24	0 - 26	Dk Br	MSL	-	-	no	5	5	0	Stopped too firm	1	I	1	2	2	DR
	26 - 43	Br	SCL	x	no		8									
	43 - 70	Yl Br	SCL	o	no		2									
	70 - 78+	St Br	SC	x	no		1									
25	0 - 25+	Br	SCL	-	-	no	20	15	0	Stopped by stones	1	-	-	-	-	-
26	0 - 36	Br	MSL	-	-	no	3	3	0		1	II	1	2	2	WE,DR
	36 - 50	Br	SCL	o	no		5									
	50 - 60	Yl Br + Gr Br	SC	x	no		0									
	60 - 100+	Yl Br + Gr Br	C	xxx	yes		0									
27	0 - 38	Dk Br	MSL	-	-	no	3	3	0		2	II	1	2	2	WE,DR
	38 - 48	Yl Br	SCL	o	no		3									
	48 - 120	Yl Br + Gr Br	C	xxx												
28	0 - 34	Dk Gr Br	MSL	-	-	no	3	3	0		1	I	1	2	2	DR
	34 - 52	Dk Br	SCL	o	no		2									
	52 - 63	Dk Yl Br	SC	o	no		2									
	63 - 83+	Dk Yl Br	C	o	no		2									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
29	0 - 37	Br	MSL	-	-	no	3	3		0		1	I	1	2	2
	37 - 48	Br	SCL	o	-	no	0									
	48 - 65	Dk Yl Br	SCL	x	-	no	0									
	65 - 100+	Yl Br + Gr Br	SC/SCL	xxx	-	no	0									
30	0 - 36	Dk Br	MSL	-	-	non	3	3	0	Stopped too firm	2	I/II	1	2	2	DR
	36 - 50+	Yl Br	SC	o	-	no	3									
31	0 - 33	Br	MSL	-	-	no	5	5	0		1	I	1	2	2	DR
	33 - 60	Br	SCL	x	-	no	5									
	60 - 71	Dk Yl Br	SC	x	-	no	3									
	71 - 90+	Yl Br + Gr Br	C	xxx	-	yes	3									
32	0 - 39	Dk Br	MSL	-	-	no	3	3	0	Stopped too firm	2	I	1	2	2	DR
	39 - 50	Dk Yl Br	SCL	o	-	no	3									
	50 - 77+	Dk Yl Br	SC	o	-	no	2									
33	0 - 30	Br	SCL	-	-	no	5	5	0		1	III	3a	3a	3a	WE, DR
	30 - 80+	Yl Br + Br	C	xxx	-	yes	3									
34	0 - 30	Br	SCL	-	-	no	5	5	0	FMCs Stopped too firm	1	III	3a	2	3a	WE
	30 - 48	Dk Yl Br + Br	SCL	xxx	-	no	0									
	48 - 75+	Yl Br + Pl Br	C	xxx	-	yes	0									
35	0 - 40	Dk Br	MSL	-	-	non	3	3	0		4	I	1	2	2	DR
	40 - 80	Dk Br	SCL	o	-	no	2									
	80 - 90+	St Br	SC	o	-	no	1									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
36	0 - 40	Dk Br	MSL	-	-	no	2	2		0	FMCs	3	I	1	2	2
	40 - 80	Dk Br	SCL	o	no		2									
	80 - 90+	St Br	SC	o	no		2									
37	0 - 30	Dk Br	MSL	-	-	no	2	2	0		3	I	1	2	2	DR
	30 - 52	Dk Br	SCL	o	no		5									
	52 - 80	Dk Yl Br	SCL	o	no		2									
	80 - 90+	St Br	SC	o	no		1									
38	0 - 38	Br	MSL	-	-	no	5	5	0		1	II	1	2	2	WE,DR
	38 - 60	Dk Yl Br	SCL	o	no		5									
	60 - 90+	Dk Yl Br + Br	C	xxx	yes		0									
39	0 - 35	Dk br	FSL	-	-	no	5	5	0		3	I	1	2	2	DR
	35 - 70	Dk br	SCL	o	no		5									
	70 - 94+	Yl Br	SCL	o	no		5									
40	0 - 26	Dk Br	SCL	-	-	no	10	10	0		3	III	3a	-	3a	WE
	26 - 38	Dk Yl Br	SCL	o	no		10									
	38 - 48	Dk Yl Br + Gr Br	C	xxx	borderline		5									
	48 - 90+	Bl	C	xxx	yes		5									
41	0 - 26	Dk Br	SCL	-	-	no	10	10	0	Stopped too firm	2	-	-	-	-	-
	26 - 36+	Dk Yl Br	SCL	no	no	no	10									
42	0 - 30	V Dk Gr Br	HCL	-	-	no	2	2	0	Stopped too firm	0	II	3a	2	3a	WE
	30 - 40	V Dk Gr Br	HCL	o	no		2									
	40 - 60+	Dk Yl Br	SC	xxx	yes		2									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Texture	Soil Profile						Notes	Agricultural Land Classification					
				Mottling	SPL	CaCO ₃	Stones (%)		Slope (°)		W C	WE grade	DR grade	Overall grade	Limit(s)	
43	0 - 40+	V Dk Gr Br	HCL	-	-	non	2	2	0		0	-	-	-	-	-
44	0 - 15	Bk	L Pt	-	-	non	0	0	0		1	V	4	1	4	WE
	15 - 50	V Dk Br	L Pt	-	no		0									
	50 - 90+	Bk	Pt	-	no		0									
45	0 - 28	Bk	Pty L	-	-	non	0	0	0		1	V	4	1	4	WE
	28 - 57	Bk	L Pt	-	no		0									
	57 - 75+	Bk	Pt	-	no		0									
46	0 - 30	V Dk Gr Br	HCL	-	-	no	5	5	0		2	III	3b	3a	3b	WE
	30 - 54+	Dk Yl Br	HCL	xxx	yes		5			Stopped too firm						
47	0 - 27	V Dk Br	SCL	-	-	non	8	8	0		1	I/II	1/2	2 / 3a	2 / 3a	DR
	27 - 45+	Dk Br	SCL	o	no		8			Stopped too firm						
48	0 - 26	Dk Br	HCL	-	-	non	10	10	0		1	III	3b	3a	3b	WE
	26 - 38	Dk Br	HCL	o	no		10									
	38 - 76+	Ol Br + Gr Br	C	xxx	yes		3			Stopped too firm						
49	0 - 30	Dk Gr Br	MCL	-	-	non	1	1	0		1	I/II	1/2	2 / 3a	2 / 3a	DR
	30 - 45+	Dk Gr Br	SCL	o	no		1			Stopped too firm						

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification								
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)		
50	Not surveyed											-	-	-	-	-	
51	0 - 26 26 - 43 43 - 120	Dk Br Dk Br Yl Br	SCL SL LS	- o o	- no no	no	10 10 2	10	0			4	I	1	3a	3a	DR
52	0 - 25 25 - 40 40 - 60+	Dk Br Dk Yl Br Dk Br	SCL SCL MSL	- o o	- no no	no	10 10 10	7	0	Stopped by stones		1	I	1	2	2	DR
53	0 - 26 26 - 37+	Dk Br Dk Yl Br	SCL SCL	- o	- no	no	5 5	5	0	Stopped too firm		1	-	-	-	-	-
54	0 - 31 31 - 45+	Dk Gr Br Yl Br	SCL SCL	- o	- no	non	10 20	2	0	Stopped on stones		0	I/II	1/2	2 / 3a	2 / 3a	DR
55	0 - 21 21 - 46 46 - 79 79 - 100+	V Dk Br + Gr Br V Dk Br + Li Br Gr Bk Bk	Pt L Pt L L Pt Pt L	- xxx	-	no	0 0 0 0	0	0			0	V	4	1	4	WE
56	0 - 30 30 - 45 45 - 60+	V Dk Gr Br V Dk Gr Br Gr	Pty L Pty L LMS	- o xxx	-	no	0 0 0	0	0	Stopped too firm		1	V	4	1	4	WE

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
57	0 - 30	V Dk Gr Br	Pty L	-		no	0	0		0		2	V	4	1	4
	30 - 47	V Dk Gr Br	Pty L	o			0									
	47 - 65	V Dk Gr Br	S Pt	xxx			0									
	65 - 90+	V Dk Gr Br	L Pt				0									
58	0 - 22	V Dk Br	Org CL	-	-	no	0	0	0		1	V	4	1	4	WE
	22 - 38	Dk Br + Br	Pt L	xxx			0									
	38 - 68	Bk	L Pt				0									
	68 - 100+	Bk	Pt				0									
59	0 - 20	Br	MZCL	-	-	no	0	0	0		1	I	1	3a	3a	DR
	20 - 47	Br	MZCL	o	no		0									
	47 - 90+	Li Br Gr	MLS	xxxx	no		3									
60	0 - 34	Dk Yl Br	org C	xxx	-	no	2	2	0		0	IV	4	1	4	WE
	34 - 60	V Dk Gr	Pty L	xxx			1									
	60 - 70	Dk Gr	SL				1									
	70 - 90+	Bl	L pt				1									
61	0 - 30	Dk Br	SCL	-	-	non	2	2	0		1	I	1	2	2	DR
	30 - 70	Dk Br	SCL	o			2									
	70 - 90+	Bk	Pty L				1									
62	0 - 15	V Dk Gr	Org HZCL	-	-	no	0	0	0		1	IV	3b	3a	3b	WE
	15 - 38	Dk Gr	ZC	xxxx	yes	no	0									
	38 - 58	Yl Rd	MS	xxx	no	no	0									
	58 - 120	V Dk Gr	ZC	xxx	yes	no	0									
63	0 - 18	Bk	Pt L	-	-	non	0	0	0		1	IV	3a	1	3a	WE
	18 - 67	V Dk Gr Br	ZCL	xxxx	no		0									
	67 - 100+	Dk Yl Br + Li Gr Br	ZC	xxx	yes		0									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
64	0 - 26	Dk Gr Br	HCL	-	-	no	5	5	0		1	II	3a	3a	3a	WE
	26 - 40	Dk Gr Br + Br	C	x	no	sl ca	3									
	40 - 82+	Yl Br	C	xxx	yes	ca	20									
65	0 - 30	Dk Gr Br	HCL	-	-	ca	5	5	0	Stopped too firm	1	III	3a	3a	3a	WE
	30 - 55+	Yl Br	C	xxx	yes	ca	20									
66	0 - 24	Dk Br	HCL	-	-	no	5	5	0		1	II	3a	2	3a	WE
	24 - 57	Dk Yl Br	HCL	xx	no	no	5									
	57 - 101	Dk Yl Br	HCL	xxx	yes	no	3									
	101 - 120	Ol Br	SC	xxx	yes	no	3									
67	0 - 28	Dk Gr Br	HCL	-	-	ca	5	5	0	Stopped too firm	1	III	3a	3a	3a	WE, DR
	28 - 57+	Yl Br	C	xxx	yes	ca	20									
68	0 - 25	Dk Gr Br	HCL	-	-	no	5	5	0	Stopped too firm	1	III	3b	3a	3a	WE
	25 - 37	Ol Br	C	xxx	no	no	3									
	37 - 75+	Ol Br + Gr Br	C	xxx	yes	ca	10									
69	0 - 32	Dk Br	HCL	-	-	no	5	5	0		2	II	3a	2	3a	WE
	32 - 46	Yl Br	C	o	no		0									
	46 - 69	Dk Yl Br	MSL	xxx	no		0									
	69 - 90+	Yl Br	SC	xxx	yes		0									
70	0 - 30	Dk Br	HCL	-	-	no	2	2	0	Stopped too firm	2	I	2	2	2	WE, DR
	30 - 60+	Dk Yl Br	SCL	o	no		2									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
71	0 - 30	Yl Br	HCL	-	-	no	2	2		0	Stopped too firm	4	II	3a	2	3a
	30 - 40	Dk Yl Br	HCL	o	no		2									
	40 - 60+	Li Ol Br	HZCL	xxx	yes		2									
72	0 - 30+	Dk Gr Br	HCL	-	-	non	2	2	0	Stopped too firm	3	-	-	-	-	-
73	0 - 20	V Dk Gr Br	org HZCL	-	-	no	0	0	0		0	IV	3b	1	3a	WE
	20 - 37	V Dk Gr Br	org HZCL	x	no		0									
	37 - 51	V Dk Gr	org HZCL	xxxx	no		0									
	51 - 88	V Dk Gr	Pt L	xxxx	no		0									
	88 - 100+	Bk	Pt	o	no		0									
74	0 - 30	V Dk Gr Br	org HZCL	-	-	no	0	0	0		1	IV	3b	1	3b	WE
	30 - 40	V Dk Gr Br	org HZCL	o	no		0									
	40 - 75+	Bk	L Pt	o	no		0									
75	0 - 30	Dk Br	org HZCL	-	-	no	1	1	0		0	III	3b	1	3b	WE
	30 - 60	Dk Br	org HZCL	xxx	yes		1									
	60 - 78	Dk Yl Br	LS	xxx	no		1									
	78 - 120	Bk	L Pt	o	no		1									
76	0 - 30	Dk Yl Br	HCL	-	-	no	3	3	0	Stopped too firm	4	I/II	2/3a	2	2/3a	WE
	30 - 47+	Dk Yl Br	HCL	o	no		2									
77	Not surveyed - no access granted															

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
78	Not surveyed - no access granted															
79	Not surveyed - no access granted															
80	0 - 19 19 - 38 38 - 66 66 - 100+	V Dk Gr V Dk Gr + Dk Gr Bk Bk	Org HZCL org HZCL L Pt Pt	- xxxx o o	- no no no	no no no no	0 0 0 0	0 0 0 0	0 0 0 0		1	IV	3b	1	3b	WE
81	0 - 26 26 - 40+	Dk Ol Br Ol Br	HCL HCL/C	- xxx	- no	(ca)	2 2	2 2	0	Stopped too firm	4	-	-	-	-	-
82	0 - 26 26 - 50+	Dk Gr Br Li Ol Br	HCL C	- xx	- -	ca ca	7 15	7 15	0	Stopped on chalk and flint	1	(II)	(3a)	2/3a	(3a)	(WE)
83	0 - 28 28 - 39 39 - 60+	Dk gr br Ol br Yl Br + Li Yl Br	HCL C HZCL	- xx -	- - -	ca	5 5 5	5 5 5	0	Stopped too firm	3	I/II	2	2	2	WE/DR
84	0 - 26 26 - 42 42 - 60+	Br Dk Yl Br Li Ol Br	HCL SCL SCL	- o o	- no no	non	3 5 5	3 5 5	0	Stopped too firm	4	I	2	2	2	WE/DR

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
85	0 - 35	Dk Ol Br	HCL	-	-	ca	1	1								0
	35 - 60+	Li Ol Br	HZCL	xxx	yes		1									
86	0 - 24	Dk Gr Br	HCL	-	-	ca	5	5	0	Stopped too firm	2	II	2	2	2	WE,DR
	24 - 45	Yl Br	C	o	no	ca	5									
	45 - 58+	Li Ol Br	C	xxx	yes	ca	20									
87	0 - 24	Dk Br	HCL	-	-	no	5	5	0		1	III	3b	3a	3b	WE
	24 - 48	Ol Br + Li Ol Br	C	xxx	yes	no	0									
	48 - 81+	Ol Br + Li Yl Br	C	xxx	yes	ca	15									
88	0 - 34	Dk Gr Br	HCL	-	-	v ca	2	2	0	Stopped too firm	1	III	3a	3a	3a	WE
	34 - 60+	Li Yl Br	C	xxx	yes	v ca	1									
89	0 - 24	Br	C	-	-	v ca	3	3	0	Stopped too firm	1	III	3a	3a	3a	WE
	24 - 38	Yl Br + Br	C	xxx	no	ca	3									
	38 - 60+	Li Ol Br + Li Br Gr	C	xxx	yes	ca	10									
90	0 - 31	Dk Gr Br	HCL	-	-	v ca	2	2	0	Stopped too firm	2	II	2	2	2	WE/DR
	31 - 50	Br	HCL	o	no	v ca	1									
	50 - 64	Dk Yl Br	C	xxx	yes	v ca	1									
	64 - 75+	Dk Yl Br	C	xxx	yes	v ca	1									
91	0 - 15	Dk Br	MCL	-	-	no	5	5	0	Stopped too firm	1	I/II	1/2	3a	3a	DR
	15 - 37	Dk Yl Br	MCL	o	no	no	5									
	37 - 51+	Br	MSL	o	no	no	5									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
92	0 - 28+	Dk Br	MSL	-	-	no	5	5								0
93	0 - 20	Dk Br	MSL	-	-	no	5	5	0	Stopped too firm	2	I/II	1	2/3a	2/3a	DR
	20 - 39	Dk Yl Br	MSL	o	no	no	5									
	39 - 48+	Yl Br	MS	o	no	no	2									
94	0 - 35	Dk Br	MSL	-	-	no	8	5	1		2	I	1	3a	3a	DR
	35 - 50	Dk Yl Br	MSL	o	no	no	5									
	50 - 100	Dk Yl Br	LMS	o	no	no	2									
	100 - 120	Dk Yl Br	MSL	o	no	no	0									
95	0 - 10	Dk Br	MSL	-	-	no	5	5	0	Stopped too firm	5	I/II	1	2/3a	2/3a	DR
	10 - 45+	Dk Yl Br	SCL	o	no	no	5	5								
96	0 - 13	V Dk Gr Br	SCL	-	-	no	2	2	0	Stopped too firm	6	I/II	1/2	2/3a	2/3a	DR
	13 - 45+	Dk Yl Br	MSL	o	no	no	5									
97	0 - 14	Br	MSL	-	-	no	0	0	0	Stopped too firm	3	I/II	1	2/3a	2/3a	DR
	14 - 42	Dk Yl Br	MSL	o	no	no	0									
	42 - 45+	Yl Br	LMS	o	no	no	0									
98	0 - 29	Dk Br	MSL	-	-	no	5	5	0		1	I	1	3b	3b	DR
	29 - 67	Dk Yl Br	LMS	o	no	no	0									
	67 - 100+	Yl Br	MS	o	no	no	0									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
99	0 - 30	Dk Br	MSL	-	-	no	3	3	0		4	1	I	3b	3b	DR
	30 - 70	Yl Br	LMS	o	no	no	0									
	70 - 90+	Yl Br	MS	o	no	no	0									
100	0 - 30+	Dk Ol Br	SCL	-	-	no	2	2	0	Stopped too firm	4	-	-	-	-	-
101	0 - 30	Yl Br	SCL	-	-	non	3	3	0	Stopped too firm	1	I/II	1/2	2/3a	2/3a	DR
	30 - 45+	Dk Yl Br	SC	o	no		3									
102	0 - 33	Dk Yl Br	SCL	-	-	non	1	1	0	Stopped too firm	1	III	3a	2 / 3a	3a	WE
	33 - 64	Li Ol Br	C	xxx	yes		1									
	64 - 75+	Ol Br	C	xxx	yes	v ca	1									
103	0 - 30	Dk Ol Br	SCL	-	-	non	1	1	0	Stopped too firm	-	III	3a	3a	3a	DR
	30 - 45	Li Ol Br	SC	xxx	no		1									
	45 - 75+	Yl Br	SC	xxx	yes		1									
104	0 - 33	Dk Br	HCL	-	-	non	2	2	0	Stopped too firm	1	III	3b	2	3b	WE
	33 - 60+	Yl Br	C	xxx	yes		2									
105	0 - 27	Dk Yl Br	HCL	-	-	no	3	3	0		1	III	3b	2	3b	WE
	27 - 37	Dk Yl Br	HCL	o	no		3									
	37 - 53	Li Ol Br	C	xxx	yes		1									
	53 - 80+	Li Ol Br + Gr Br	C	xxx	yes		10									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
106	0 - 25	Dk Yl Br	HCL	-	-	yes	3	3	0		1	III	3a	2	3a	WE
	25 - 35	Dk Yl Br	C	o	no		3									
	35 - 47	Li Ol Br	C	xxx	yes		3									
	47 - 67	Li Ol Br + Rd	SCL	xxx			3									
	67 - 90+	Li Ol Br + Gr Br	C	xxx	yes		33									
107	0 - 25	Dk Br	HCL	-	-	no	3	3	0		1	III	3b	2	3b	WE
	25 - 34	Dk Yl Br	HCL	xx	no											
	34 - 60	Ol Br + Gr Br	C	xxx	yes											
	60 - 71	Br	SCL	xxx	no											
	71 - 90+	Li Ol Br + Gr Br	C	xxx	yes		20									
108	0 - 30	Dk Yl Br	HCL	-	-	no	3	3	0		2	III	3b	3a	3b	WE
	30 - 44	Ol Br + Gr Br	C	xxx	yes											
	44 - 54	Br	SC	xxx	yes											
	54 - 75+	Li Ol Br + Gr Br	C	xxx	yes		20		Stopped too firm							
109	0 - 26	Dk Yl Br	HCL	-	-	yes	3	3	0		3	III	3a	3a	3a	WE, DR
	26 - 38	Ol Br + Gr Br	C	xxx	yes		3									
	38 - 55	Ol Br + Gr Br	C	xxx	yes		10									
	55 - 68	Br	SC	xxx	yes		3									
	68 - 90+	Li Ol Br + Gr Br	C	xxx	yes		20									
110	Not surveyed										-	-	-	-	-	-
111	Not surveyed										-	-	-	-	-	-
112	0 - 30	Dk Br	SCL	-	-	non	3				1	I	1	2	2	DR
	30 - 50	Dk Gr Br	SCL	o	no		3									
	50 - 70	Br	SCL	o	no		3									
	70-80+	Br + Gr Br	SC	xx	no		3									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
113	0 - 25	Dk Yl Br	HCL	-	-	yes	3	3		0	Stopped too firm	2	III	3a	3a	3a
	25 - 60+	Li Ol Br + Gr Br	C	xxx	yes	yes	10									
114	0 - 30	V Dk Gr Br	HCL	-	-	no	2	2	0	Stopped too firm	2	III	3b	2	3b	WE
	30 - 50	Li Ol Br	C	xxx	yes	no	2									
	50 - 60+	Li Ol Br	C	xxx	yes	v ca	2									
115	0 - 30	V Dk Gr Br	HCL	-	-	v ca	2	2	0	Stopped too firm	2	III	3a	2	3a	WE
	30 - 75+	Li Ol Br	C	xxx	yes	v ca	2									
116	0 - 24	Dk Br	HCL	-	-	no	3	3	0	Stopped too firm	2	III	3b	3a	3b	WE
	24 - 33	Li Ol Br	C	xxx	yes	yes	3									
	33 - 70+	Li Ol Br + Li Yl Br	C	xxx	yes	yes	25									
117	0 - 23	Dk Br	HCL	-	-	no	3	3	0	Stopped too firm	3	II	3a	2	3a	WE
	23 - 41	Li Ol Br	C	o	no	yes	3									
	41 - 63+	Li Ol Br + Li Yl Br	C	xxx	yes	yes	10									
118	0 - 26	Dk Br	MCL	-	-	non	5	5	0		2	I	1	2	2	DR
	26 - 50	Dk Yl Br	SCL	o	no		5	5								
	50 - 90+	Yl Br	C	o	no		0									
119	0 - 24	Dk Yl Br	HCL	-	-	no	2	2	0	Stopped too firm	2	I/II	2/3a	1/2	2/3a	(DR)
	24 - 55+	Dk Yl Br	HCL	o	no		2									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
120	0 - 19	Dk Br	HCL	-	-	no	3	3	0	Stopped too firm	1	III	3b	1	3a	WE
	19 - 41	Dk Br + Gr Br	HZCL	xxx	yes		3									
	41 - 59	V Dk Br	MZCL	o			3									
	59 - 75+	Bk	SCL	o			3									
121	0 - 31	Dk Gr Br	SCL	-	-	non	5			0	II	2	2	2	WE,DR	
	31 - 60	Yl Br	SCL	o	no		5									
	60-80+	Li Ol Br	C	xxx	yes		10									
122	0 - 26	Dk Gr Br	MSL	-	-	non	5			1	III	2	3a	3a	DR	
	26 - 40	Yl Br	MSL	o	no		5									
	40 - 65+	Li Ol Br	C	xxx	yes		10		Stopped on stones							
123	0 - 38	V Dk Gr Br	SCL	-	-	non	5			2	III	3a	3a	3a	WE,DR	
	38 - 120	Li Ol Br	C	xxx	yes		5									
124	0 - 25	Dk Br	SCL	-	-	no	8	6	0	Stopped on stones	2	-	-	-	-	
	25 - 36+	Dk Gr Br + Br	SCL	xxx	no	no	8									
124a	0 - 26	Dk Gr Br	SCL	-	-	non	5			2	III	3a	3a	3a	WE,DR	
	26 - 48	Li Ol Br	C	xxx	yes		5									
	48 - 80+	Gr Br + Br	SCL	xx	borderline		5									
125	0 - 30	Dk Gr Br	SCL	-	-	non	5			1	III	3a	3a	3a	WE,DR	
	30 - 60	Li Ol Br	C	xxx	yes		5		FMCs							
	60 - 80+	Pl Br	C	xxx	yes	v ca	10									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
126	0 - 30	Dk Gr Br	HCL	-	-	non	5				FMCs	1	III	3b	3a	3b
	30 - 80+	Li Ol Br	C	xxx	yes		5									
127	0 - 27	Dk Br	HCL	-	no	non	8	6		Stopped on stones	1	III	3b	3a	3b	WE
	27 - 45+	Dk Gr Br + Br	C	xxx	yes	ca	8									
128	0 - 28	Dk Gr Br	HCL	-	-	non	5				2	II	3a	2	3a	WE
	28 - 60	Li Ol Br	C	xx	no	ca	5									
	60 - 80+	Li Ol Br	C	xxx	yes		5									
129	0 - 35	V Dk Gr Br	HCL	-	-	non	5				1	III	3b	2	3b	WE
	35 - 58	Li Ol Br	C	xxx	yes	sl ca	5									
	58 - 80+	Li Yl Br	C	xx	no	v ca	15									
130	0 - 25	Dk Br	SCL	-	-	no	8	6	0	Stopped on stones	2	-	-	-	-	-
	25 - 40+	Dk Gr Br	SCL	xxx	no	no	8									
131	0 - 25	V Dk Gr Br	MSL	-	-	no	4	4	0		1	III	2	3a	3a	DR
	25 - 35	V Dk Gr + Dk Gr	SCL	xxx	no	no	4									
	35 - 60	Li Ol Br + Gr Br	C	xxx	yes	no	3									
	60 - 80+	Gr Br	C	xxx	yes	no	0									
132	0 - 30	Dk Br	C	-	-	ca	5	4	0	Stopped on stones	1	III	3a	3a	3a	WE,DR
	30 - 61	Li Ol Br	C	xxx	yes	ca	5									
	61 - 75+	Li Ol Br	C	xxx	yes	ca	10									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
133	0 - 27	Dk Br	MSL	-	-	non	0	0	0	Stopped on stones	1	III	2	3a	3a	WE
	27 - 36	Dk Gr Br	SCL	xx	no		0									
	36 - 49	St Br + Br	C	xxx	yes		0									
	49 - 70+	St Br + Br	C	xx	yes	ca	20									
134	0 - 28	Dk Br	SCL	-	-	no	8	6	0	Stopped on stones	1	I/II	1/2	2/3a	2/3a	(DR)
	28 - 51+	Yl Br	SCL	-	no	no	8									
135	0 - 30	Dk Br	SCL	-	-	yes	8	6	0	Stopped on stones	3	I/II	1/2	2/3a	2/3a	(WE), DR
	30 - 55+	Dk Yl Br	HCL	o	no	yes	5									
136	0 - 25	Dk Gr Br	C	-	-	no	8	6	0	Stopped on stones	1	III	3b	3a	3a	WE
	25 - 34	Dk Gr Br + Li Ol Br	C	xxx	yes		3									
	34 - 57	Li Ol Br + Pl Br	C	xxx	yes		3									
	57 - 75+	Li Ol Br + Gr Br	C	xxx	yes		10									
137	0 - 29	Br	HCL	-	-	no	2	2	0	FMCs	0	III	3b	2	3b	WE
	29 - 39	Br	HCL	o	no		2									
	39 - 60+	Li Br Yl	C	xxx	yes		4									
138	0 - 30	Br	HCL	-	-	yes	10	7	0	Stopped on stones	1	I/II	2	2/3a	2/3a	WE, (DR)
	30 - 45+	Dk Yl Br	HCL	x	no	yes	5									
139	0 - 15+	Br	SCL	-	-		2	2	0	Stopped too firm	-	-	-	-	-	-

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
140	0-15+	Br	SCL	-	-		2	2	0	Stopped too firm	-	-	-	-	-	-
141	0-24	Dk br	MCL	-	-	no	10	8	0	Stopped on stones	3	-	-	-	-	-
	24-30+	Br	SCL	o	no	no	10									
142	0-30	Dk Br	SCL	-	-	non	5	5	0	Stopped too firm	2	I/II	1/2	2/3a	2/3a	(DR)
	30-45+	Dk Yl Br	MSL	o	no		5									
143	0-35	Dk br	SCL	-	-	no	5	3	0		1	III	3a	3a	3a	WE,DR
	35-60	Br	C	xxx	yes		3									
	60-80+	Li ol br	C	xxx	yes		0									
144	0-35	Br	HCL	-	-	no	2	2	0		1	III	3b	3a	3b	WE
	35-60	Dk gr	HCL	xxx	yes		2									
	60-80+	Gr Br + Br	C	xxx	yes		2									
145	0-26	Dk Yl Br	C	-	-	ca	5	4	0	Stopped too firm	1	III	3a	3a	3a	WE,DR
	26-35	Dk Yl Br + Li Ol Br	C	xxx	borderline	ca	5									
	35-47	Li Ol Br	C	xxx	yes	ca	2									
	47-75+	Yl Br	C	xxx	yes	ca	10									
146	0-26	Ol br & Li ol br	C	xxx	-	ca	5	3	0		1	III	3a	3a	3a	WE, DR
	26-44	Ol br & Li ol br	C	xxx	yes	ca	2									
	44-90+	Br + Br Yl	C	xxx	yes	ca	10									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
147	0 - 30	Dk Br	C	-	-	no	5	4	0		2	III	3b	3a	3b	WE
	30 - 37	Br	C	xxx	no	no	2									
	37 - 90+	Gr Br + Br	C	xxx	yes	no	2									
148	0 - 26	Dk br	SCL	-	-	non	5	4	0		2	I	1	2	2	DR
	26 - 72	Dk gr br	SCL	-	no		5									
	72 - 100+	Br & Gr br	SCL	xxx	no		0									
149	0 - 30	Dk Gr Br	MSL	-	-	non	3				1	I	1	2	2	DR
	30 - 60	Br	MSL	o	no		3									
	60 - 80	Li Yl Br	MSL	xx	no		3									
	80 - 120	Pl Br	MSL	xxx	no		3									
150	0 - 28	Dk br	SCL	-	-	non	5	4	0		1	I	1	2	2	DR
	28 - 68	Dk Yl Br	SCL	-	no	-	5									
	68 - 90+	Yl Br + Gr Br	SCL	xxx	no	-	2									
151	0 - 30	Dk Gr Br	MSL	-	-	non	5				0	I	1	2	2	DR
	30 - 60	Br	MSL	x	no		5									
	60 - 75	Br + Li Br	SC	xx	no		5									
	75 - 90+	Br + Pl Br	SC	xxx	yes		5									
152	0 - 26	Dk br	SCL	-	-	non	5	4	0		2	II	2	2	2	WE, DR
	26 - 41	Br	SCL	xx	no		0									
	41 - 56	Br	SC	xxx	borderline		0									
	56 - 80+	Yl Br + Br	C	xxx	yes	ca	0									
153	0 - 30	Br	SCL	-	-	non	5				0	II	2	2	2	WE,DR
	30 - 58	Br	C	x	no		5									
	58 - 72	Pl Br + Li Yl Br	C	xxx	borderline	v ca	15									
	72 - 100+	Pl Br	C	xxx	yes	v ca	10									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
154	0 - 27	Dk br	C	-	-	ca	5	4	0	Stopped too firm	2	II	2	3a	3a	DR
	27 - 41	Dk gr br	C	-	no	ca	5									
	41 - 62	Yl Br + Br	C	xxx	yes	ca	0									
	62 - 70+	Br Yl + Gr Br	C	xxx	yes	ca	10									
155	0 - 30	Dk Gr Br	SCL	-	-	v ca	10			2	III	2	3a	3a	WE,DR	
	30 - 80+	Pl Br	HCL-C	xxx	yes	v ca	10									
156	0 - 30	Dk Gr Br	SCL	-	-	v ca	5			2	II	2	3a	3a	DR	
	30 - 45	Br + Li Yl Br	C	xx	no	v ca	5									
	45 - 80+	Li Yl Br	C	xxx	yes	v ca	15									
157	0 - 32	Dk Gr Br	SCL	-	-	v ca	10			2	III	2	3a	3a	DR	
	32 - 60+	Li Yl Br + Pl Br	C	xxx	yes	v ca	15		Stopped too firm							
158	0 - 15	Dk br	SCL	-	-	ca	8	6	0	1	III	2	3a	3a	DR	
	15 - 35	Dk br	C	o	-	ca	5									
	35 - 53	Br & Li ol br	C	xxx	yes	ca	0									
	53 - 90+	Br Yl + Br	C	xxx	yes	ca	10									
159	0 - 27	Dk br	SCL	-	-	ca	8	6	0	2	II	2	3a	3a	DR	
	27 - 42	Br	C	o	-	ca	5									
	42 - 56	Br + Rd Br	C	xxx	yes	ca	5									
	56 - 70+	Br Yl	C	xxx	yes	ca	50		Stopped too firm							
160	0 - 30	Br	SCL	-	-	non	5			1	II	2	2	2	WE,DR	
	30 - 40	Br	HCL-C	o	no		5									
	40 - 70	Pl Br	C	xx	no	v ca	10									
	70 - 90+	Pl Br	C	xxx	yes	v ca	15									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
161	0 - 21	Br	MSL	-	-	no	0	0	0		1	III	2	3a	3a	WE,DR
	21 - 39	Dk gr	C	xxxx	yes	no	0									
	39 - 60	Yl Br + Br	C	xxx	yes	no	0									
	60 - 100+	Li ol br & Li br gr	C	xxx	yes	no	0									
162	0 - 27	Dk br	SCL	-	-	no	5	4	0		2	III	3a	3a	3a	WE
	27 - 55	Gr br	SC	xxx	yes		2									
	55 - 100+	Yl Br + Br	SCL	xxx	no		0									
163	0 - 10	Bk	Pt L	-	-	non	0				0	V	4	1	4	WE
	10 - 27	Dk Gr	org HZCL	xxxx	no		0									
	27 - 65	Dk Gr + Br	ZC	xxxx	yes		0									
	65 - 120	Bk	S Pt	o	no		0									
164	0 - 20	V dk gr	org HZCL	-	-	no	0	0	0		1	IV	3b	1	3b	WE
	20 - 40	Dk gr	org C/ZC	xxx	yes		0									
	40 - 57	V dk br & Gr br	org ZC	xxx	yes		0									
	57 - 68+	Gr	SC	xxxx	yes		0		Stopped too firm							
165	0 - 9	V Dk Gr Br	Pty L	xxx	-	no	0	0	0		1	V	4	1	4	WE
	9 - 20	Dk Gr	org HZCL	xxxx	no		0									
	20 - 30	Dk Gr	HZCL	xxxx	no		0		Standing water at 56 cm							
	30 - 100+	Bl	Pt													
166	0 - 10	Br	org HCL	-	-	no	0	0	0		1	IV	4	1	4	WE
	10 - 22	Dk gr	org HZCL	xxxx	no		0									
	22 - 80	Dk gr & Gr	org ZC	xxxx	yes		0									
	80 - 100+	Bl	L pt	-	no		0									
167	0 - 20	Br	SCL	-	-	no	5	4	0		4	I	1	2	2	DR
	20 - 62	Br	SCL	-	no		5									
	62 - 90+	Dk Rd Gr	MSL	-	no		3									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
168	0 - 19	Br	org HZCL	xx	-	no	0	0	0		1	V	4	1	4	WE
	19 - 41	Dk gr	org ZC	xxxx	yes		0									
	41 - 77	Dk gr & Gr br	org ZC	xxxx	yes		0									
	77 - 90+	Bl	Pt I	-	no		0									
169	0 - 28	V Dk Gr Br	HCL	-	-	v ca	5				2	III	3a	3a	3a	WE,DR
	28 - 58	Pl Br	C	xxx	yes	v ca	10									
	58 - 80+	Pl Br + Gr	C	xxx	yes	v ca	10									
170	0 - 30	Dk Gr Br	MSL	-	-	non	3				1	I	1	2	2	DR
	30 - 80+	Yl Br	SCL	o	no		5									
171	0 - 30	Dk Gr Br	MSL	-	-	non	2				2	I	1	3a	3a	DR
	30 - 70	Yl Br	LMS	o	no		3									
	70 - 120	St Br	LMS	o	no		3									
172	0 - 30	Dk gr br	HCL	x	-	yes	5	3	0	Stopped on stones	2	III	3a	3a	3a	WE,DR
	30 - 62+	Br Yl	C	xxx	yes	yes	15									
173	0 - 28	Dk br	SCL	-	-	no	5	4	0		2	III	3a	3a	3a	WE,DR
	28 - 54	Dk gr	SC	xxxx	yes		5									
	54 - 70	Gr br	SC	xxx	yes		3									
	70 - 90+	Gr br	SC	xxx	yes		1									
174	0 - 30	Dk Gr Br	MSL	-	-	non	5				2	I	1	2	2	DR
	30 - 48	Yl Br	MSL	o	no		5									
	48 - 65	Br	MSL	o	no		10									
	65 - 90	Pl Br	LMS	o	no		5									
	90 - 100+	Li Yl Br	SCL	xxx	yes		5									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
175	0 - 30	Dk br	SCL	-	-	no	5	4	0		1	II	2	2	2	WE,DR
	30 - 50	Dk gr br	SCL	-	-	no	5									
	50 - 58	Dk Yl Br + Br	SC	xxx	-	no	3									
	58 - 90+	Br	C	xxx	yes		2									
176	0 - 30	Br	MSL	-	-	non	3			Stopped on stones	2	I/II	1	2/3a	2/3a	DR
	30 - 50+	Yl Br	MSL	o	-	no	5									
177	0 - 30	Dk br	MSL	-	-	non	8	6	0	Stopped on stones	1	I/II	1	2/3a	2/3a	DR
	30 - 51+	Br	MSL	-	-	-	8									
178	0 - 28	Dk br	MSL	-	-	no	5	3	0	Stopped by stones	2	I	1	2	2	DR
	28 - 36	Dk gr br	MSL	-	-	no	5									
	36 - 70+	Br	MSL	-	-	no	5									
179	0 - 22	Dk gr br	MCL	-	-	no	5	4	0	Stopped on stones	4	I	1	2	2	DR
	22 - 37	Dk Yl Br	HCL	o	-	no	5									
	37 - 65+	Yl Br	SCL	o	-	no	5									
180	0 - 24	Dk gr br	HCL	-	-	yes	5	5	0	Stopped on stones	3	I/II	1	2/3a	2/3a	DR
	24 - 36	Dk Yl Br	C	x	-	borderline	5									
	36 - 53+	Li ol br + Gr br	C	xxx	yes		15									
181	0 - 32	Dk Br	MCL	-	-	non	2	2	0	Stopped too firm	4	III	3a	3a	3a	WE
	32 - 60+	Dk Yl Br	C	xxx	yes		2									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
182	0 - 25	Dk Br	SCL	-	-	non	3	3	0	Stopped too firm	1	-	-	-	-	-
	25 - 40+	Dk Yl Br	SCL	o	no		2									
183	0 - 30+	Dk gr br	SCL	-	-	no	10	7	0	Stopped too firm	2	-	-	-	-	-
184	0 - 29	Dk Br	MCL	-	-	non	2	2	0	Stopped too firm	4	II	2	2	2	WE,DR
	29 - 46	Dk Yl Br	MCL	o	no		2									
	46 - 60+	Yl Br	C	xxx	yes		2									
185	0 - 27	Dk Br	SCL	-	-	non	5	5	0	Stopped too firm	2	I/II	1/2	2 / 3a	2 / 3a	(DR)
	27 - 45+	Dk Yl Br	SCL	o	no		1									
186	0 - 28	Dk Gr Br	SCL	-	-	non	5	3	0	Stopped too firm	1	I/II	1/2	2 / 3a	2 / 3a	(DR)
	28 - 45+	Dk Yl Br	SCL	o	no		5									
187	0 - 25	Br	HCL	-	-	non	2	2	0	Stopped too firm	2	III	3b	3a	3b	WE
	25 - 38	Br	HCL	xxx	no		2									
	38 - 50+	Li Yl Br	C	xxx	yes		2									
188	0 - 29	Dk br	SCL	-	-	no	5	5	0	Stopped on stones	1	I/II	1/2	2 / 3a	2 / 3a	(DR)
	29 - 44	Dk gr br	SCL	o	no		5									
	44 - 49+	St br	SCL	o	no		5									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
189	0 - 28	Dk br	SCL	-	-	no	5	5		0	Stopped on stones	1	-	-	-	-
	28 - 37+	Dk Yl Br	SCL	o	no		5									
190	0 - 25	Dk gr br	HCL	-	-	yes	5	5	0	Stopped on stones	2	III	3a	3a	3a	WE,DR
	25 - 39	Dk gr br	HCL	o	no	yes	3									
	39 - 60+	Li ol br + Gr br	C	xxx	yes	yes	10									
191	0 - 30	Dk br br	HCL	-	-	yes	5	5	0	Stopped on stones	1	III	3a	3a	3a	WE,DR
	30 - 38	Yl Br + Gr Br	C	xxx	yes	yes	5									
	38 - 65+	Li ol br + Gr br	C	xxx	yes	yes	15									
192	0 - 30	Br	HCL	-	-	yes	3	3	0	Stopped on stones	1	III	3a	3a	3a	WE
	30 - 45	Ol br + Li ol br	C	xxx	yes	yes	3									
	45 - 62+	Li ol br + Gr br	C	xxx	yes	yes	10									
193	0 - 26	Dk Br	SCL	-	-	non	2	2	0	Stopped too firm	1	I/II	1/2	2 / 3a	2 / 3a	(DR)
	26 - 45+	Dk Yl Br	SCL	o	no		2									
194	0 - 31	Dk Br	SCL	-	-	non	3	3	0	Stopped too firm	3	II	2	3a	3a	DR
	31 - 45	Yl Br	SCL	o	no		2									
	45 - 52+	Li Yl Br	C	xxx	yes	v ca	1									
195	0 - 30	Dk br	SCL	-	-	no	5	5	0	Stopped on stones	3	I/II	1/2	2 / 3a	2 / 3a	(DR)
	30 - 52+	Br	SCL	o	no	no	8									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
Total	>2cm	>6cm														
196	0 - 29	Dk gr br	HCL	-	-	yes	5	5	0	Stopped on stones	3	III	3a	3a	3a	WE
	29 - 39	Dk Yl Br	C	x	no	yes	5									
	39 - 64+	Li ol br + Gr br	C	xxx	yes	yes	10									
197	0 - 26	Li Yl Br	C	xxx	-	non	3	3	0		4	III	3b	3a	3b	WE
	26 - 70	Br	C	xxx	yes		3									
	70 - 105+	Pl Br	C	xxx	yes		2									
198	0 - 30	Dk br	SCL	-	-	no	5	5	0		2	II	2	3a	3a	DR
	30 - 53	Br	SCL	o	no		2									
	53 - 75	Dk Yl Br + Li Ol Br	C	xxx	yes		0									
	75 - 81+	Br	SCL				5									
199	0 - 33	Dk Br	SCL	-	-	non	2	2	0	Stopped too firm	3	I/II	1/2	2 / 3a	2 / 3a	(DR)
	33 - 55+	Dk Yl Br	SCL	o	no		2									
200	0 - 30	Dk Br	HCL	-	-	ca	5	5	0	Stopped too firm	3	I/II	1/2	2 / 3a	2 / 3a	(DR)
	30 - 47+	Dk Gr Br	HCL	o	no	ca	5									
201	0 - 30	Dk Gr Br	C	-	-	ca	5	5	0	Stopped on stones	3	III	3a	3a	3a	WE, DR
	30 - 59+	Li Ol Br + Li Yl Br	C	xxx	yes	ca	10									
202	0 - 35	Br	SCL	-	-	non	3	3	0	Stopped too firm	1	I/II	1/2	2 / 3a	2 / 3a	(DR)
	35 - 45+	Dk Yl Br	SCL	o	no	-	3									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
203	0 - 25	Dk Gr Br	SCL	-	-	v ca	5			Stopped on stones	1	II	2	3a	3a	DR
	25 - 53	Br	SCL	xx(x)	borderline	v ca	10									
	53 - 67+	Pl Br	HCL	xxx	yes	v ca	10									
204	0 - 25	Dk br	SCL	-	-	sl ca	8	6	0	Stopped on stones	3	-	-	-	-	-
	25 - 36+	Br	SCL	-	-	ca	8									
205	0 - 26	Dk Gr Br	SCL	-	-	sl ca	5			Stopped on stones	4	II	2	3a	3a	DR
	26 - 52	Dk Yl Br	SCL	x	no		5									
	52 - 65	Br	SC	xx	no		5									
	65 - 80+	Pl Br	C	xxx	yes	v ca	15									
206	0 - 26	Dk br	SCL	-	-	no	6	4	0	Stopped on stones	3	III	3a	3a	3a	WE,DR
	26 - 35	Dk gr br	HCL	xxx	no	no	8									
	35 - 48+	Br	C	xxx	no	ca	10									
207	0 - 25	Dk Gr Br	SCL	-	-	ca	5			1	II	2	3a	3a	DR	
	25 - 45	Br	SCL	xx	no	ca	5									
	45 - 80+	Pl Br	HCL	xxx	yes	v ca	15									
208	0 - 29	Dk br	SCL	-	-	no	8	5	0	Stopped on stones	1	-	-	-	-	-
	29 - 38+	Dk gr br	SCL	-	-	no	10									
209	0 - 30+	Br	SCL	-	-	non	5	5	0	Stopped too firm	1	-	-	-	-	-

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
210	0 - 35+	Br	SCL	-	-	non	5	5		0	Stopped too firm	1	-	-	-	-
211	0 - 34 34 - 55+	Br Yl Br	SCL C	- xx	- no	non	2 2	2	0	Stopped too firm	1	I/II	1/2	2	2	DR
212	0 - 34 34 - 50 50 - 63+	Br Dk Yl Br Yl Br	SCL SCL SCL	- o	- no	non	2 2 2	2	0	Stopped too firm	1	I	1	2	2	DR
213	0 - 35 35 - 50+	Br Yl Br	SCL SCL	- o	- no	non	2 2	2	0	Stopped too firm	1	I/II	1/2	2 / 3a	2 / 3a	(DR)
214	0 - 24 24 - 38 38 - 54 54 - 74 74 - 100+	Dk Br Br Br Br St Br	SCL MSL LMS LMS MS	- o	- no	non	5 5 5 0 0	5	0		1	I	1	3a	3a	DR
215	0 - 25 25 - 39 39 - 57+	Dk Gr Br Dk Gr Br Br	MSL SCL MSL	- o	- no	non	5 5 5			Stopped too firm	1	I/II	1	2 / 3a	2 / 3a	(DR)
216	0 - 26 26 - 36 36 - 45+	Dk Gr Br Dk Gr Br Br	SCL SCL MSL	- o	- no	non	5 5 4			Stopped too firm	1	I/II	1/2	2 / 3a	2 / 3a	(DR)

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
217	0 - 25	Br	MSL	-	-	non	5	4	0	Stopped too firm	1	I	1	3a	3a	DR
	25 - 39	Dk Br	SCL	o	no		5									
	39 - 58	Br	LMS	o	no		4									
	58 - 75+	Br	LMS	o	no		4									
218	0 - 29	Dk Gr Br	SCL	-	-	non	5	5	0		2	I	1	3b	3b	DR
	29 - 58	Br	LMS	o	no		5									
	58 - 90+	Dk Yl Br	LMS	o	no		3									
219	0 - 30	Dk Br	SCL	-	-	non	5			Stopped too firm	2	I	1	3a	3a	DR
	30 - 59	Dk Br	SCL	o	no		5									
	59 - 75+	Br	LMS	o	no		4									
220	0 - 39	V Dk Br + Dk Gr	Org L	-	-	non	0				1	IV	3a	-	3a	WE
	39 - 60	V Dk Gr Br + Dk Gr	SCL	xxx	no		0									
	60 - 120	V Dk Gr Br + Dk Gr	MSL	xxx	no		0									
221	0 - 22	Dk Gr Br	SCL	-	-	non	3				3	I	1	2	2	DR
	22 - 76	Br	MSL	o	no		5									
	76 - 120	Yl Br	MSL	x	no		5									
222	0 - 32	Dk Yl Br	SCL	-	-	ca	0	0	0	Stopped too firm	3	III	2	3a	3a	DR
	32 - 38	Br	C	-	-	ca	0									
	38 - 48	Br & Gr	C	xxx	yes	ca	2									
	48 - 75+	Yl Br + Gr	C	xxx	yes	ca	10									
223	0 - 28	Dk Gr Br	C	-	-	v ca	3				3	III	3a	3a	3a	WE,DR
	28 - 33	Br	C	xx	no	v ca	5									
	33 - 65	Li Ol Br	C	xxx	yes	v ca	20									
	65 - 85+	Yl Br	C	xxx	yes	ca	10									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
224	0 - 35	Br	SCL	-	-	ca	0	0	0	Stopped on stones	1	III	2	3a	3a	WE, DR
	35 - 52	Li br gr	C	xxx	yes	ca	5									
	52 - 65+	Li br gr	C	xxx	yes	ca	20									
225	0 - 27	Dk Gr Br	MSL	-	-	non	5			Stopped on stones	2	I/II	1	2 / 3a	2 / 3a	(DR)
	27 - 55+	Yl Br	MSL	o	no		10									
226	0 - 30	Dk Gr Br	SCL	-	-	v ca	5				0	III	2	3a	3a	DR
	30 - 50	Br	C	xxx	borderline	v ca	5									
	50 - 60	Pl Br	C	xxx	yes		10									
	60 - 85+	Li Gr + Pl Br	C	xxxx	yes	v ca	15									
227	0 - 25	Dk br	SCL	-	-	no	5	5	0	Stopped on stones	2	II	2	3a	3a	DR
	25 - 55	Dk Yl Br	SCL	-	no	no	5									
	55 - 67	Dk Yl Br	SCL	-	no	no	5									
	67 - 77+	Br	C	xxx	yes	no	5									
228	0 - 26	Dk br	SCL	-	-	no	5		0	Stopped on stones	2	I/II	1/2	2 / 3a	2 / 3a	DR
	26 - 34	Br	SCL	-	no	no	5									
	34 - 47+	Br	SCL	-	no	no	5									
229	0 - 24	Dk Gr Br	MSL	-	-	non	5				1	II	2	3a	3a	DR
	24 - 45	Br	SCL	o	no		5									
	45 - 50	Br	C	xxx	yes		5									
	50 - 80+	Br	C	xx	yes		5									
230	0 - 26	Dk br	SCL	-	-	no	8	5	0	Stopped on stones	1	I/II	1/2	2 / 3a	2 / 3a	DR
	26 - 46+	Br	SCL	-	-	no	8									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification								
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)		
231	0 - 27	Dk Gr Br	SCL	-	-	non	5					1	I	1	3a	3a	DR
	27 - 72	Dk Yl Br	SCL	o	no		5										
	72 - 85+	Br	SCL	xx	no		10										
232	0 - 28	V Dk Gr Br	SCL	-	-	non	5					1	II	2	3a	3a	DR
	28 - 65	Br	SC	xx	no		5										
	65 - 75	Br	SC	xxx	yes		5										
	75 - 120	Li Yl Br	C	xxx	yes	v ca	10										
233	0 - 30	V Dk Gr Br	SCL	-	-	non	5					1	II	2	3a	3a	DR
	30 - 50	Dk Yl Br	SC	o	no		5										
	50 - 75	Br + Gr Br	SC	xxx	yes		5		FMCs								
	75 - 120	Pl Br	C	xxx	yes	v ca	10										
234	0 - 32	V Dk Gr Br	SCL	-	-	non	5					2	II	2	3a	3a	DR
	32 - 65	Yl Br	SCL	o	no		5										
	65 - 120	Yl Br + Br	SC	xxx	yes		5		FMCs								
235	0 - 30	Dk Gr Br	SCL	-	-	non	5					1	II	2	3a	3a	DR
	30 - 50	Br	SCL	o	no		5										
	50 - 80+	Br	SC	xxx	yes		10		FMCs								
236	0 - 28	Dk br	SCL	-	-	no	8	5	0			1	II	2	3a	3a	DR
	28 - 36	Dk gr br	SCL	-	no	no	8										
	36 - 50	Br	C	-	no	no	6										
	50 - 61+	Br	C	xxx	yes	no	0			Stopped on stones							
237	0 - 27	Dk Gr Br	SCL	-	-	non	5					1	I/II	1/2	3a	3a	DR
	27 - 60+	Dk Yl Br	SCL	o	no		10			Stopped on stones							

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
238	0 - 24	Dk ye br	SCL	-	-	no	0	0	0		1	III	3a	3a	3a	WE,DR
	24 - 36	Dk br	SCL	-	-	sl ca	2									
	36 - 60	Br	C	xxx	yes	ca	2									
	60 - 84+	Rd Yl	C	xxx	yes	ca	25									
239	0 - 30	Dk Gr Br	SCL	-	-	non	5				1	II	2	3a	3a	DR
	30 - 65	Br	SCL	o	no		5									
	65 - 75	Br	SC	xxx	yes		5									
	75 - 120	Li Yl Br	SC	xxx	yes	v ca	10									
240	0 - 29	Dk br	SCL	-	-	no	5	5	0		1	II	2	2	2	WE, DR
	29 - 63	Br + Yl Br	C	xx	no	no	5									
	63 - 85+	Gr Br + Br Yl	C	xxx	yes	yes	25									
241	0 - 29	Dk br	SCL	-	-	no	5	4	0	Stopped too firm	1	II	2	3a	3a	DR
	29 - 50	Br + Yl Br	C	-	no	no	5									
	50 - 71+	St br & Br	C	xxx	yes	no	3									
242	0 - 31	Dk br	SCL	-	-	no	5	5	0	Stopped on stones	1	II	2	3a	3a	DR
	31 - 52	Br	C	-	no	no	5									
	52 - 68+	Gr Br + Br Yl	C	xxx	yes	yes	15									
243	0 - 26	Dk br	SCL	-	-	no	1	0	0	Stopped on stones	1	III	3a	3a	3a	WE,DR
	26 - 46	Br + Dk Yl Br	C	xx(x)	no	no	1									
	46 - 75+	Yl Br + Br	C	xxx	yes	yes	30									
244	0 - 26	Dk Gr Br	MSL	-	-	non	5				3	I	1	2	2	DR
	26 - 44	Dk Br	MSL	o	no		5									
	44 - 70	Yl Br	MSL	o	no		5									
	70 - 120	Yl Br	LMS	o	no		5									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
245	0 - 25	Dk Gr Br	MSL	-	-	non	5			Stopped on stones	2	I/II	1	2 / 3a	2 / 3a	DR
	25 - 50+	Br	MSL	o	no		10									
246	0 - 26	Dk br	MSL	-	-	no	5	5	0		1	I	1	2	2	DR
	26 - 85+	Br	SCL	-	no	yes	10									
247	0 - 25	Dk br	SCL	-	-	no	8	6	0	Stopped on stones	1	I/II	1/2	2 / 3a	2 / 3a	(DR)
	25 - 45+	Br	SCL	-	-	no	12									
248	0 - 30	Dk br	SCL	-	-	no	5	4	0		1	III	3a	3a	3a	WE, DR
	30 - 75	Yl Br + Dk Gr Br	C	xxx	yes	no	5									
	75 - 87+	Br + Br Yl	C	xxx	yes	yes	10									
249	0 - 24	Dk br	SCL	-	-	no	10	8	0	Stopped on stones	1	I/II	1/2	2 / 3a	2 / 3a	DR
	24 - 46+	Dk Yl Br	SCL	-	no	no	10									
250	0 - 33	Dk br	HCL	-	-	ca	2	2	0		2	III	3a	3a	3a	WE,DR
	33 - 65	Pl Br	C	xxx	yes	ca	5									
	65 - 120	Br Yl	MS	-	no		0									
251	0 - 20	Dk br	HCL	-	-	ca	5	3	0	Stopped on stones	2	II	2	3a	3a	DR
	20 - 42	Br	HCL	-	no	ca	5									
	42 - 70+	Br Yl + Gr Br	C	xxx	yes	ca	40									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
252	0 - 30	Dk Gr Ol	Other	-	-	v ca	5									
	30 - 45	Br	HCL	xx	no	v ca	15									
	45 - 65+	Pl Br	HCL-C	xxx	yes	v ca	15									
253	0 - 26	Dk Gr Br	SCL	-	-	non	3				1	I	1	2	2	DR
	26 - 52	Br	SCL	o	no		5									
	52 - 75	Br	SCL	o	no		5									
	75 - 120	Br	C	xxx	yes		5									
254	0 - 30	Dk Gr Br	SCL	-	-	non	5				2	II	2	3a	3a	DR
	30 - 40	Br	SC	xx	no		5									
	40 - 75	Br	C	xxx	yes		5									
	75 - 95+	Pl Br	HCL	xxx	borderline	v ca	15									
255	0 - 30	Dk Gr Br	MSL	-	-	non	5			Stopped on stones	1	I/II	1	2 / 3a	2 / 3a	DR
	30 - 55+	Yl Br	MSL	o	no		10									
256	0 - 30	Dk Br	MSL	-	-	non	3			Stopped on stones	1	I/II	1	2 / 3a	2 / 3a	DR
	30 - 58+	Dk Yl Br	MSL	o	no		10									
257	0 - 25+	Dk br	HCL	-	-	yes	10	6	0	Stopped on stones	2	-	-	-	-	-
258	0 - 27	Dk br	MSL	-	-	no	5	3	0	Stopped on stones	3	I/II	1	2 / 3a	2 / 3a	DR
	27 - 44+	Br	MSL	-	-	no	8									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
259	0 - 30	Dk br	MSL	-	-	no	10	6		0	Stopped on stones	2	-	-	-	-
	30 - 38+	Br	MSL	-	-	no	10									
260	0 - 30	Dk Gr Br	MSL	-	-	non	3			Stopped on stones	2	I	1	2	2	DR
	30 - 65+	Yl Br	MSL	o	no		5									
261	0 - 30	Dk Gr Br	MSL	-	-	non	3			Stopped on stones	1	I/II	1	2 / 3a	2 / 3a	DR
	30 - 48+	Yl Br	MSL	o	no		10									
262	0 - 27	Dk br	SCL	-	-	no	5	4	0		2	II	2	3a	3a	DR
	27 - 40	Br	SCL	-	no	no	5									
	40 - 61	Br	SCL	-	no	no	8									
	61 - 90+	Yl Br + Gr Br	SC	xxx	yes	no	2									
263	0 - 30	Dk gr br	SCL	-	-	no	5	3	0	Stopped on stones	2	I/II	1/2	2 / 3a	2 / 3a	DR
	30 - 49+	Br	SCL	-	-	no	10									
264	0 - 27	Dk br	MSL	-	-	no	10	6	0	Stopped on stones	3	-	-	-	-	-
	27 - 34+	Dk gr br	MSL	-	no	no	10									
265	0 - 28	Dk Gr Br	MSL	-	-	non	3				1	I	1	2	2	DR
	28 - 67	Dk Yl Br	MSL	o	no		5									
	67 - 85+	Yl Br + Li Yl Br	MSL	xx	no		5									

Annex 1: North tuddenham, A47 - soil survey details

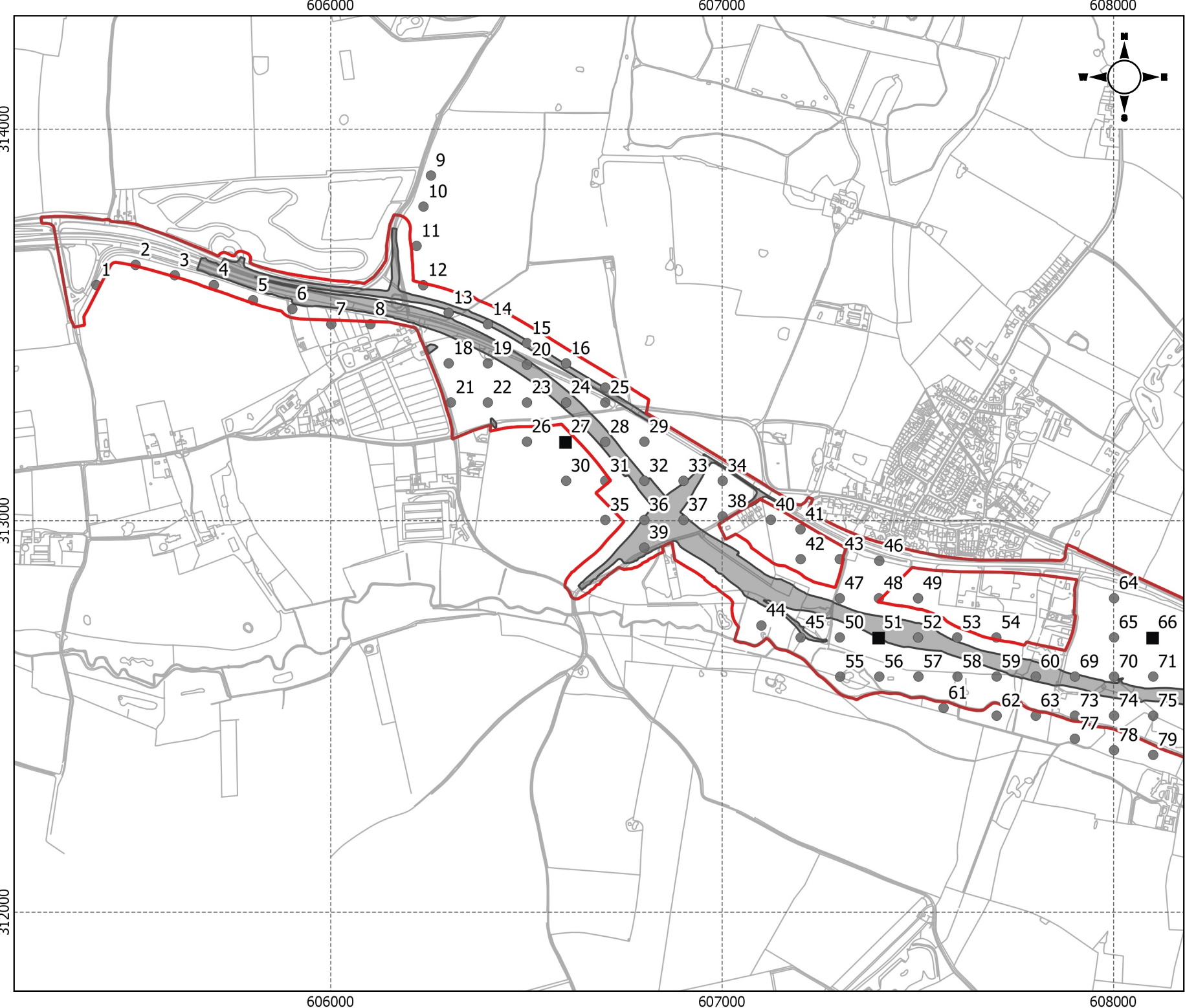
Auger	Depth (cm)	Colour	Soil Profile						Agricultural Land Classification							
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
266	0 - 28	Dk Gr Br	MSL	-	-	non	5			Stopped on stones	1	I/II	1	2 / 3a	2 / 3a	DR
	28 - 53+	Yl Br	MSL	o	no		10									
267	0 - 42	Dk Br	SCL	-	-	non	2	2	0	Stopped too firm	0	I	1	2	2	DR
	42 - 66	Dk Yl Br	SCL	o	no		2									
	66 - 73+	Yl Br	MSL	o	no		2									
268	0 - 28	Dk Br	SCL	-	-	non	2	2	0		0	I	1	2	2	DR
	28 - 50	Yl Br	SCL	o	no		2									
	50 - 80+	Yl Br	SCL	o	no		2									
269	0 - 30	Dk Gr Br	SCL	-	-	non	3	5	0		1	I	1	3a	3a	DR
	30 - 45	Dk Br	SCL	o	no		3									
	45 - 75	Br	LMS	o	no		0									
	75 - 120	Yl Br	MS	o	no		0									
270	0 - 28	Dk Br	SCL	o	no	non	5	5	0	Stopped too firm	1	I/II	1/2	2 / 3a	2 / 3a	DR
	28 - 46	Dk Yl Br	SCL	o	no		5									
	46 - 55+	Dk Br	SCL	o	no		5									
271	0 - 22	Dk br	MSL	-	-	no	8	5	0	Stopped too firm	2	I/II	1	3a/b	3a/b	DR
	22 - 38	Br	MSL	o	no		8									
	38 - 58+	Yl Br	MS	o	no		2									
272	0 - 30	Dk Gr Br	SCL	-	-	non	8	5		FMCs	2	III	3a	3a	3a	WE,DR
	30 - 38	Br	SCL	xx	no		5									
	38 - 80+	Li Ol Br	C	xxx	yes		5									

Annex 1: North tuddenham, A47 - soil survey details

Auger	Depth (cm)	Colour	Soil Profile							Agricultural Land Classification						
			Texture	Mottling	SPL	CaCO ₃	Stones (%)		Notes	Slope (°)	W C	WE grade	DR grade	Overall grade	Limit(s)	
273	0 - 32	Dk Gr Br	SCL	-	-	non	5	4				2	I	1	2	2
	32 - 80	Br	SCL	xx	no		5									
	80 - 120	Br	HCL	xx	no		5									
274	0 - 25	Dk br	SCL	-	-	no	5	3	0	Stopped on stones	1	III	3a	3a	3a	WE,DR
	25 - 38	Br	SCL	-	-		5									
	38 - 60	Br	SC	xxx	yes		2									
	60 - 78+	Br	C	xxx	yes		2									
275	0 - 35	V Dk Gr Br	MSL	-	-	non	5	3		FMCs	2	I	1	2	2	DR
	35 - 80	Yl Br	MSL	o	no		5									
	80 - 120	Li Yl Br	SC	xxx	yes		5									
276	0 - 21	Dk br	SCL	-	-	no	8	4	0	Stopped on stones	1	I	1	3a	3a	DR
	21 - 52+	Dk br	SCL	-	-		8									
277	0 - 13	Dk br	SCL	-	-	no	5	2	0	Stopped on stones	1	I	1	3a	3a	DR
	13 - 45	Dk br	MSL	-	-		5									
	45 - 68+	St br	MS	-	-		15									
278	0 - 30	Dk Gr Br	MSL	-	-	non	10			Stopped on stones	1	I/II	1	2 / 3a	2 / 3a	DR
	30 - 55+	Br	MSL	o	no		10									

Key to Survey Notes:

Colour	Texture	Mottling	CaCO ₃
Bk - black Br - brown(ish) Bu – blue(ish) Dk - dark Du - dusky Gn - green(ish) Gr - grey(ish) Li - light OI - olive Pi - pink(ish) Pl - pale Rd - red(dish) St - strong V - very Wk - weak Yl - yellow(ish)	C - clay ZC - silty clay SC - sandy clay CL - clay loam (H-heavy, M-medium) ZCL - silty clay loam (H-heavy, M-medium) SCL - sandy clay loam SZL - sandy silt loam (F-fine, M-medium, C-coarse) ZL - silt loam SL - sandy loam (F-fine, M-medium, C-coarse) LS - loamy sand (F-fine, M-medium, C-coarse) S - sand (F-fine, M-medium, C-coarse) Org - organic (S-sand, L-loam, C-clay) Pty - peaty (S-sand, L-loam) Pt - peat (S-sandy, L-loamy, H-humified, SF-semi-fibrous, F-fibrous) R - bedrock	o – unmottled; x – a few (<2%) ochreous mottles; xx – greyish or pale structure faces and typically a few ochreous mottles, <u>OR</u> common (2-20%) to many (20-40%) ochreous mottles; xxx – greyish or pale colours dominant in matrix and/or ped faces and common to very many (>40%) ochreous mottles (gleyed horizon); xxxx – dominantly grey, often with some ochreous mottles (gleyed horizon).	non - non-calcareous v sl ca - very slightly calcareous sl ca - slightly calcareous ca - calcareous v ca - very calcareous
		SPL	Notes
		yes - a slowly permeable layer borderline - a borderline slowly permeable layer no - not a slowly permeable layer	FMCs – ferrimanganiferous concentrations
Principal Limitation(s) to Agriculture			
CL - climate	DE - depth	DR - droughtiness	ER - erosion
GR - gradient	MR - microrelief	ST - stoniness	TX - texture
			FL - flooding
			WE - wetness



Title
Annex 2: Map 1 (west)
Location of Observations

Project
A47, North Tuddenham

Client

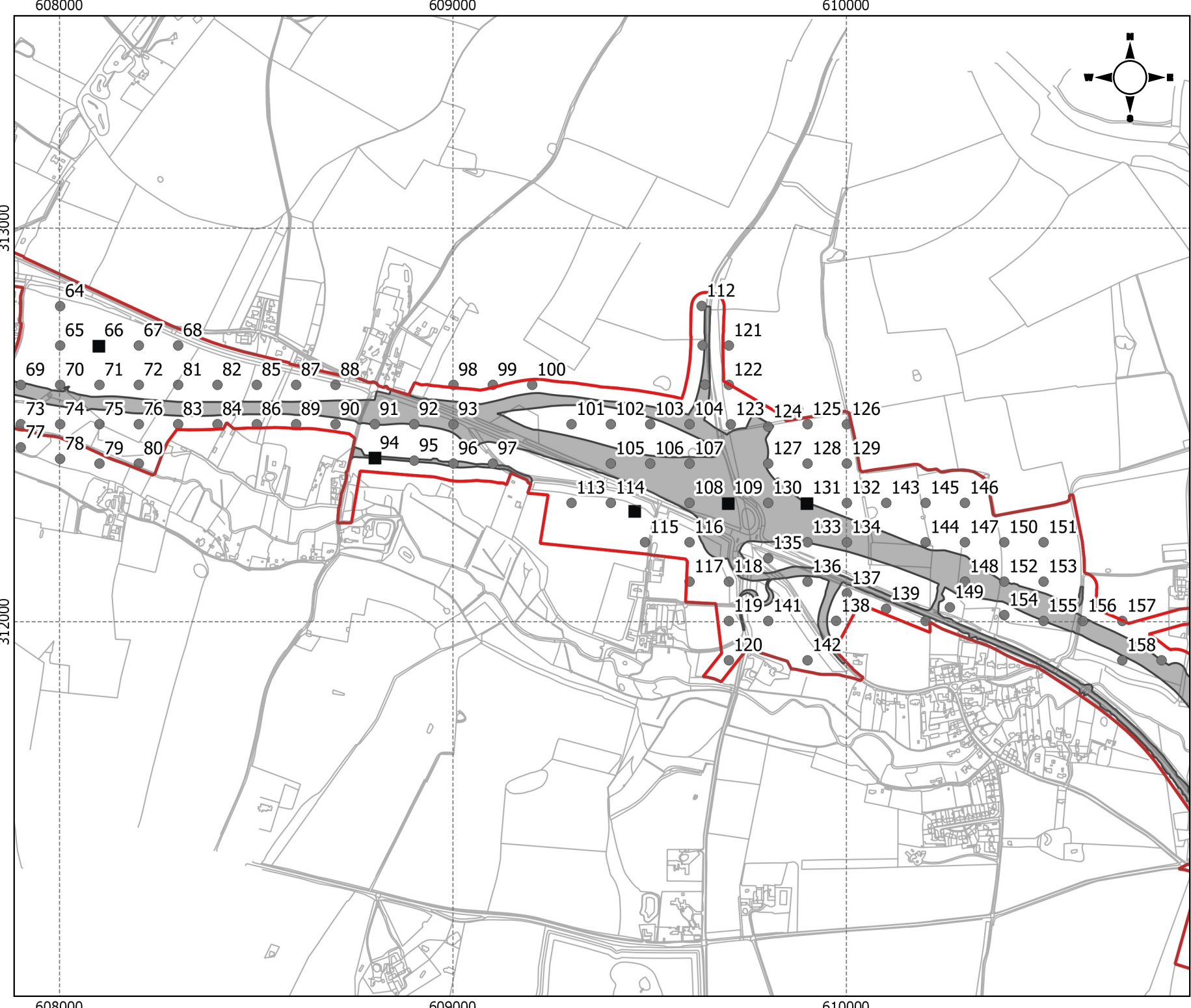


- Key
- OS MM
 - Survey Area
 - New road footprint
 - Soil description pits
 - Soil augers

Date: 23 / 09 / 2020

Scale: 1 : 12,500 at A3





Title
Annex 2: Map 1 (centre)
Location of Observations

Project
A47, North Tuddenham

Client

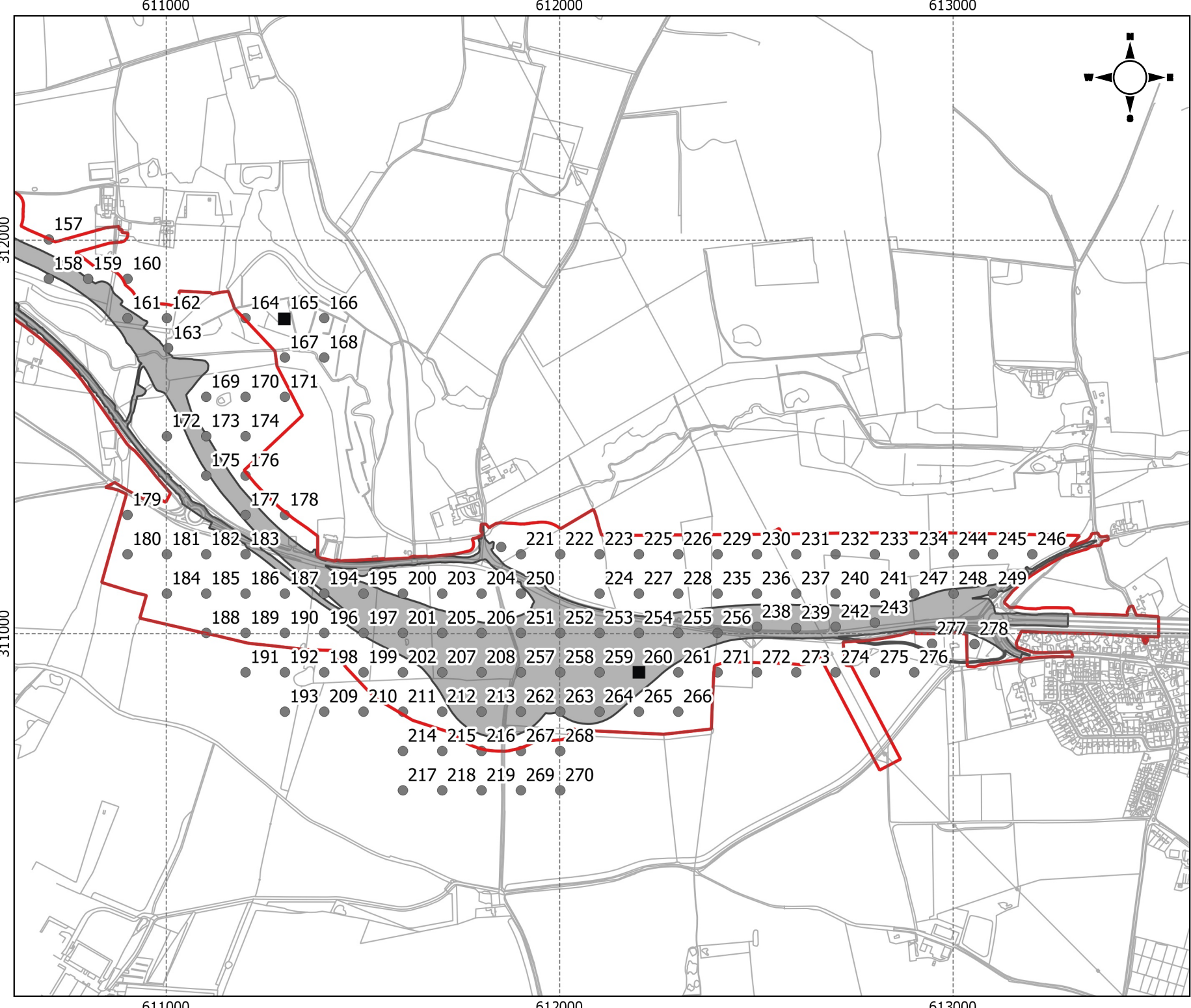


- Key
- OS MM
 - ▭ Survey Area
 - ▭ New road footprint
 - Soil description pits
 - Soil augers

Date: 23 / 09 / 2020

Scale: 1 : 12,500 at A3





Title
Annex 2: Map 1 (east)
Location of Observations

Project
A47, North Tuddenham

Client

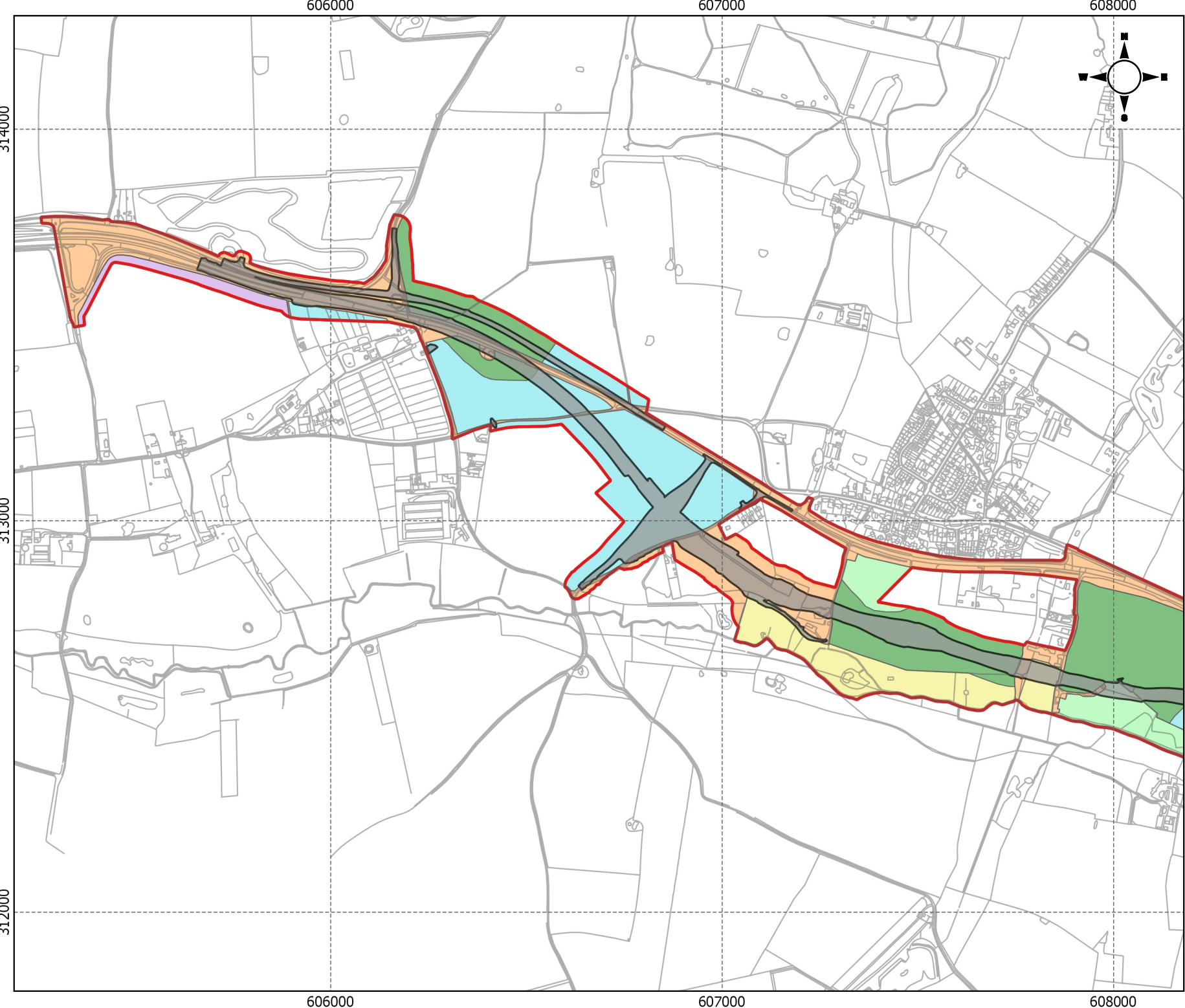


- Key
- OS MM
 - ▭ Survey Area
 - ▭ New road footprint
 - Soil description pits
 - Soil augers

Date: 23 / 09 / 2020

Scale: 1 : 12,500 at A3





Title
 Annex 3: Map 2 (west)
 Agricultural Land Classification

Project
 A47, North Tuddenham

Client

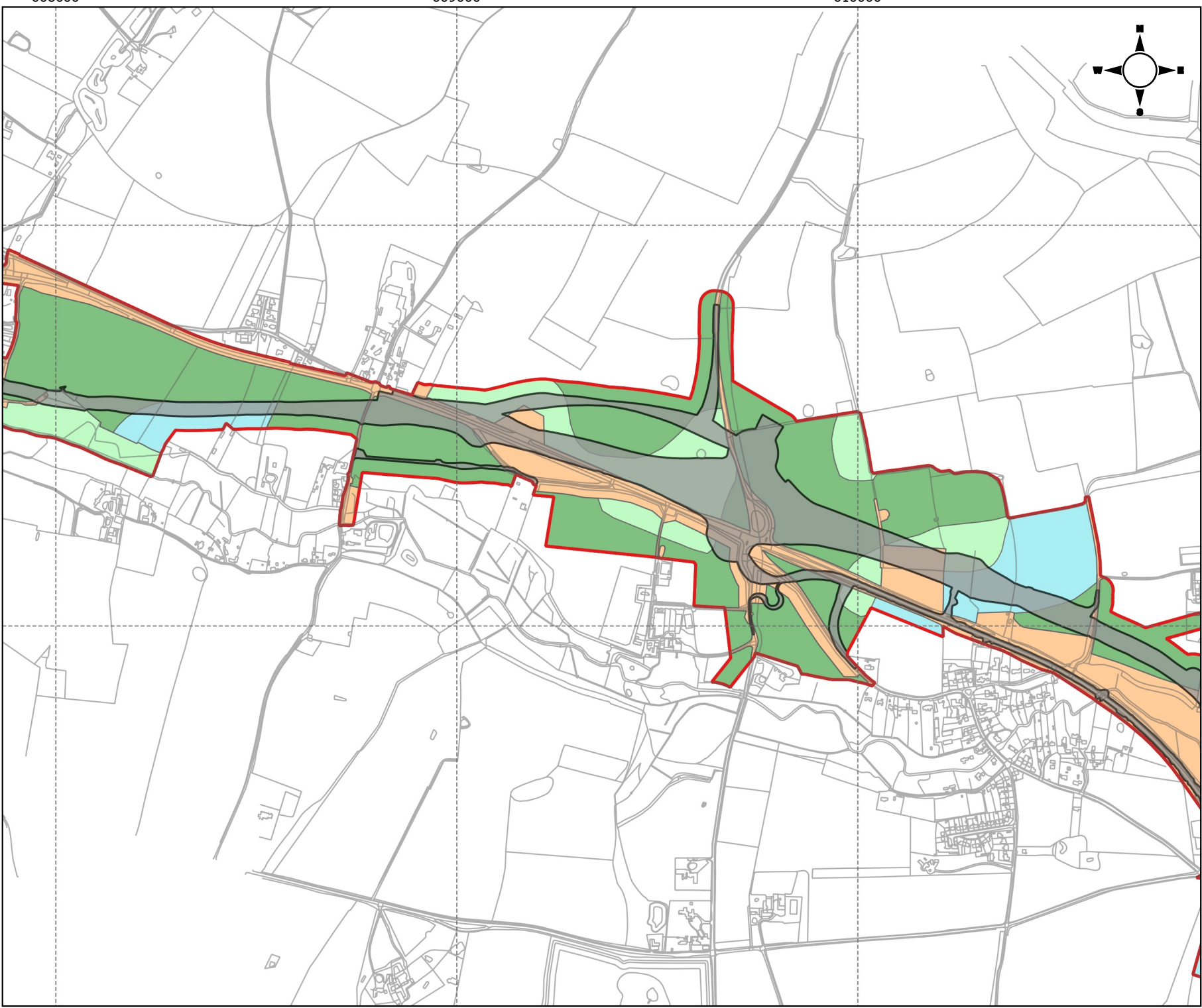


- Key
- OS MM
 - Survey Area
 - New road footprint
 - Non-agricultural land
 - Grade 2
 - Subgrade 3a
 - Subgrade 3b
 - Grade 4
 - Non-surveyed land

Date: 23 / 09 / 2020

Scale: 1 : 12,500 at A3





Title
Annex 3: Map 2 (centre)
Agricultural Land Classification

Project
A47, North Tuddenham

Client



- Key
- OS MM
 - Survey Area
 - New road footprint
 - Non-agricultural land
 - Grade 2
 - Subgrade 3a
 - Subgrade 3b
 - Grade 4

Date: 23 / 09 / 2020

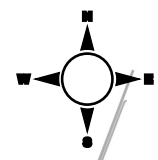
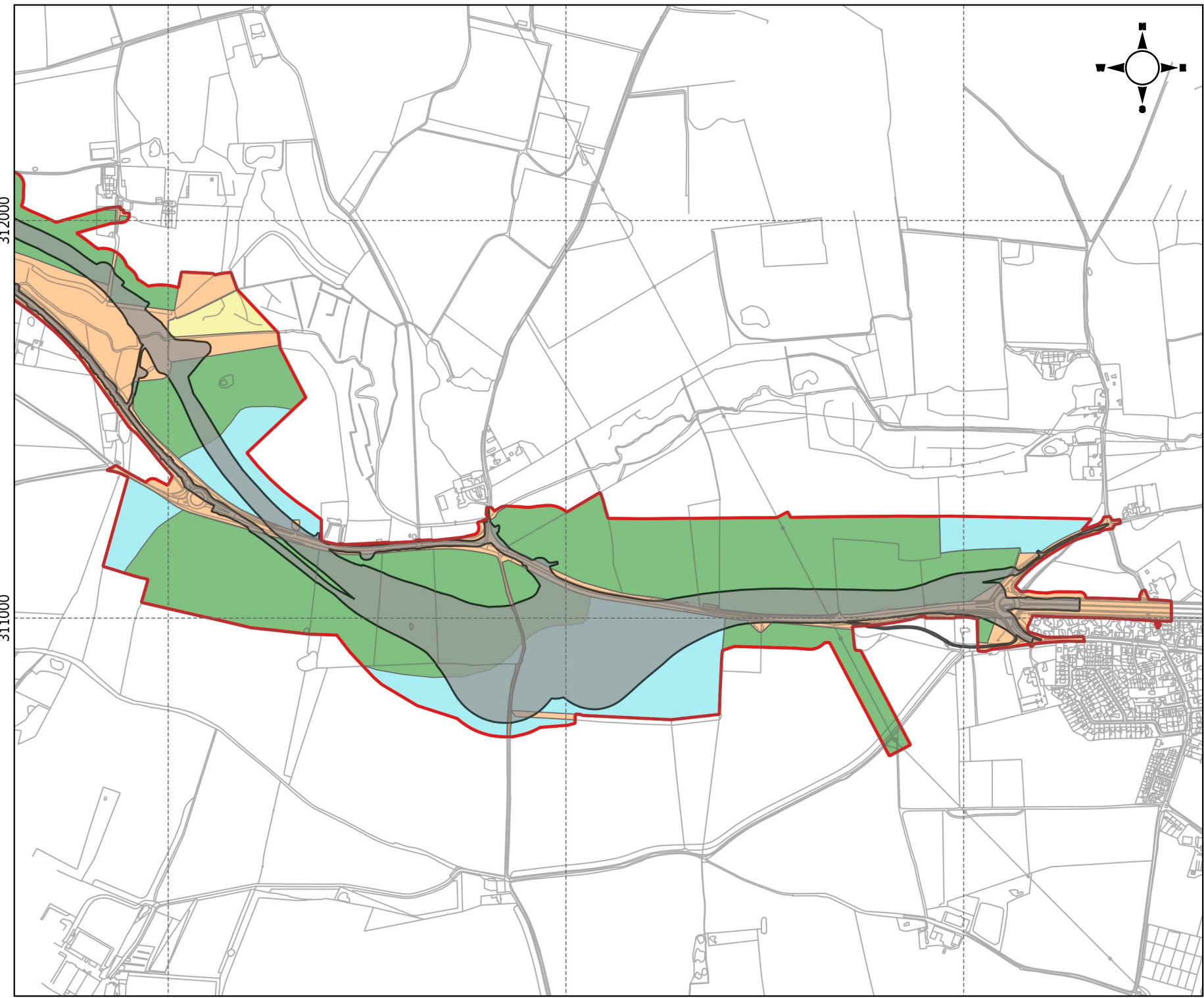
Scale: 1 : 12,500 at A3



611000

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


Title
Annex 3: Map 2 (east)
Agricultural Land Classification

Project
A47, North Tuddenham

Client

SWECO 

- Key**
-  OS MM
 -  Survey Area
 -  New road footprint
 -  Non-agricultural land
 -  Grade 2
 -  Subgrade 3a
 -  Grade 4

Date: 23 / 09 / 2020

Scale: 1 : 12,500 at A3



611000

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312000

312000

311000

311000



ANALYTICAL REPORT

Report Number 20450-20
Date Received 28-AUG-2020
Date Reported 04-SEP-2020
Project 1010559 SOIL 26 08 2020
Reference SIMON MCMILLAN
Order Number P69101SM2708

Laboratory Reference				SOIL488926	SOIL488927	SOIL488928	SOIL488929	SOIL488930	SOIL488931		SOIL488933
Sample Reference				P27 TS	215 TUDD TS	TUDD P94 TS	21 TS	P51 LSS 1	PIT NR 114 TS		TUDD 7 TS
Determinand	Unit			SOIL	SOIL	SOIL	SOIL	SOIL	SOIL		SOIL
Sand 2.00-0.063mm	% w/w			72	77	79	67	87	47		71
Silt 0.063-0.002mm	% w/w			16	14	11	19	6	23		14
Clay <0.002mm	% w/w			12	9	10	14	7	30		15
Textural Class **				SL	SL	SL	SL	LS	HCL		SL

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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Reported by ***Gina Graham***
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** Please see the attached document for the definition of textural classes.

ADAS (UK) Textural Class Abbreviations

The texture classes are denoted by the following abbreviations:

Class	Code
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

Report Number	13414-20	W195	MARTIN WORSLEY	Client	NORTH TUDDENHAM A47
Date Received	02-JUL-2020		ADAS GLEADTHORPE		
Date Reported	14-JUL-2020		MEDEN VALE		
Project	1010559 SOIL 22-06-20		MANSFIELD		
Reference	NORTH TUDDENHAM A47		NOTTINGHAMSHIRE		
Order Number	P69101MW2206		NG20 9PD		

Laboratory Reference		SOIL482925	SOIL482926	SOIL482927	SOIL482928	SOIL482929	SOIL482930	SOIL482931			
Sample Reference		125 TOPSOIL	131A TOPSOIL	160 TOPSOIL	161 TOPSOIL	229 TOPSOIL	233 TOPSOIL	260A TOPSOIL			
Determinand	Unit	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL			
Sand 2.00-0.063mm	% w/w	62	61	54	69	65	59	66			
Silt 0.063-0.002mm	% w/w	19	22	20	16	20	18	20			
Clay <0.002mm	% w/w	19	17	26	15	15	23	14			
Neutralising Value as CaCO3 eq.	% w/w	<1	<1	<1	<1	<1	<1	<1			
Neutralising Value as CaO eq.	% w/w	<1	<1	<1	<1	<1	<1	<1			
Textural Class **		SCL	SL	SCL	SL	SL	SCL	SL			

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.

Document Control **This test report shall not be reproduced, except in full, without the written approval of the laboratory.**

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

Reported by ***Myles Nicholson***
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ADAS (UK) Textural Class Abbreviations

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Class	Code
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

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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

Report Number	13415-20	W195	MARTIN WORSLEY	Client	NORTH TUDDENHAM A47
Date Received	02-JUL-2020		ADAS GLEADTHORPE		
Date Reported	03-AUG-2020		MEDEN VALE		
Project	1010559 SOIL 22-06-20		MANSFIELD		
Reference	NORTH TUDDENHAM A47		NOTTINGHAMSHIRE		
Order Number	P69101MW2206		NG20 9PD		

Laboratory Reference		SOIL482932	SOIL482933							
Sample Reference		165 0-10CM	165 10-25CM							
Determinand	Unit	SOIL	SOIL							
Sand 2.00-0.063mm	% w/w	18	9							
Silt 0.063-0.002mm	% w/w	38	34							
Clay <0.002mm	% w/w	44	57							
Organic Matter LOI	% w/w	30.4	16.9							
Textural Class **		P-C	O-C							

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.

Document Control **This test report shall not be reproduced, except in full, without the written approval of the laboratory.**

Reported by *Myles Nicholson*
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 Fax: [REDACTED]
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** Please see the attached document for the definition of textural classes.

ADAS (UK) Textural Class Abbreviations

The texture classes are denoted by the following abbreviations:

Class	Code
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:

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ANNEX 5 – DESCRIPTION OF ALC GRADES

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 agricultural 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.