SUNNICA ENERGY FARM

EN010106

Volume 6

Environmental Statement

6.2 Appendix 12B: Soils and Agriculture Baseline Report

APFP Regulation 5(2)(a)

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

Sunnica Energy Farm

Environmental Statement
Appendix 12B: Soils and Agriculture Baseline Report

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1 Introduction

1.1 Brief

1.1.1 This report has been prepared by Daniel Baird Soil Consultancy Ltd (Baird Soil). It provides an assessment of the Agricultural Quality, Soil Resources, and Farming Circumstances baseline for the site of the proposed Solar PV development, Sunnica Energy Farm (the Scheme).

1.1.2 The Sunnica East Site A, Sunnica East Site B, Sunnica West Site A and Sunnica West Site B (the Sites) covers approximately 981.0 hectares (ha) of land. The Order limits, including the cable route, covers approximately 1113.3ha of predominately agricultural land to the north east of Newmarket.

1.1.3 For soils and agricultural land quality, most of the Sites were surveyed by Baird Soil. Two areas of the Sites had already been subject to assessments, the results of which are in the public domain. Results of these assessments have been incorporated into the Baird Soil assessment.

1.1.4 The assessment of Farming Circumstances for the affected farm businesses was carried out by Baird Soil.

1.1.5 In addition to assessing the area occupied by the Scheme, this baseline report also looks at the Farming Circumstances for units that would be affected by the proposed buried cable route. There is no Agricultural Land Classification (ALC) and soil resource assessment for the majority of the cable route as the corridor is narrow and any suspension of agricultural use would be very short term and no significant translocation of soil material will occur. In places, the cable route runs through areas that were subject to ALC survey because the fields were options for solar PV in earlier design iterations for the Scheme.

1.1.6 Burwell National Grid Substation Extension was not included within the ALC survey area. The land take required for Burwell National Grid Substation Extension would constitute a small area of land (less than 1ha). A detailed ALC survey places points at 100m intersections of the Ordnance Survey grid, so the ability to resolve the baseline at a small site such as this is limited. It has therefore been decided to proceed on a worst case scenario basis and assume that all agricultural land occupied by the Burwell National Grid Substation Extension would be Best and Most Versatile (BMV) land (see Section 2 for a definition of BMV land).

2 Agricultural Land Classification Methodology

2.1.1 The Ministry of Agriculture, Fisheries and Food (MAFF) ALC system grades the quality of agricultural land for use in land use planning. It divides agricultural land into six grades (Grade 3 being split into Subgrades 3a and 3b) according to the degree of limitation imposed upon land use by the inherent physical characteristics of climate, site and soils. Grade 1 land is of an excellent quality, whilst Grade 5 land has very severe limitations for agricultural use. Grades 1, 2 and 3a are considered to be the BMV agricultural land.

2.1.2 Accordingly, a detailed assessment of the Sites has been undertaken using the MAFF revised guidelines and criteria for ALC (Ref 1) published October 1988.

2.1.3 The MAFF revised guidelines and criteria for ALC of October 1988 require that the following factors be investigated:

a. Climate: Average Annual Rainfall (AAR) and Accumulated Temperature above 0°C between January and June (AT0);

b. Site: Gradient, Micro Relief and Flooding;

c. Soils: Texture, Structure, Depth, Stoniness, and Chemical Toxicity; and

d. Interactive Factors: Soil Wetness, Soil Droughtiness and Liability to Erosion.

2.1.4 Use of the ALC methodology is also supported by Natural England Technical Advice Note 049 (Ref 2) (TIN049) published January 2009.

2.1.5 TIN049 describes a detailed ALC survey as having one sample point per hectare. To achieve this sample density and remove selection bias from the location of the sample points, their location was predetermined by positioning them at 100m intersections of the Ordnance Survey National Grid using a GPS. TIN049 notes the availability of regional scale Provisional ALC maps but advises that use of these should be limited to their intended strategic use as they are not sufficiently accurate for assessment of fields or individual development sites.

2.1.6 Additional guidance is provided by the British Society of Soil Science Guidance Document 1: Working with Soils Guidance Note on Assessing Agricultural Land Classification Surveys in England and Wales (Ref 3). This guidance is aimed at the planning professional who may have limited knowledge of ALC assessment, to assist in evaluation of ALC reports.

2.1.7 Green open spaces such as golf courses are not classed as agricultural land by the ALC system and are mapped as non-agricultural land along with buildings, farm yards and woodland. Such areas would be impractical to return to field scale productive use for livestock grazing or arable cultivation. Agricultural land does not have to be in agricultural use to remain agricultural land, the ALC system assesses the quality and versatility of the land resource and not the current productive use. ALC grade does not change with changes in agricultural land use. For instance, arable land that is entered into a long-term environmental agreement where it is managed as low input grassland, does not have its ALC grade lowered as a result. Likewise, under the former ‘area payment’ agricultural support system, fields were not downgraded or designated as non-agricultural land for the duration of set aside where no cropping or grazing was permitted.

2.1.8 Two previous ALC assessments were undertaken within the Sites. These were a Reading Agricultural Consultants (RAC) survey for a consented minerals development, and a MAFF survey on land to the east of the A11. The MAFF survey methodology used the same sample density of one sample point per hectare as that described in TIN049, and the RAC survey methodology used an overall observation density of one sample point per 2ha. The RAC report and a MAFF proof of evidence for these respective surveys are attached as Annex A and B respectively.

2.1.9 Burwell National Grid Substation Extension was not included within the ALC survey area. The land take required for Burwell National Grid Substation Extension would constitute a small area of land (less than 1ha). A detailed ALC survey places points at 100m intersections of the Ordnance Survey grid, so the ability to resolve the baseline at a small site such as this is limited. It has therefore been decided to proceed on a worst case scenario basis and assume that all agricultural land occupied by the Burwell National Grid Substation Extension would be Best and Most Versatile (BMV) land (see Section 2 for a definition of BMV land).

2.1.10 Minor areas within the Sites could not be accessed for detailed survey undertaken by Baird Soil owing to the presence of outdoor pigs that can be significantly disturbed when unfamiliar people enter enclosures, a particular problem with pregnant sows. Where it was possible to return to survey after pigs had been rotated off the land, this was done so.

3 Soil Resources Methodology

3.1.1 The Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Ref 4) provides guidance on using ALC soil survey data to promote the conservation and beneficial reuse of soil at development sites, safeguarding both the mass of the soil resource and its functional capacity. The application of this code of practice is voluntary; however, following the guidance can deliver clear benefits in terms of the sustainable use of a finite resource, minimising the generation of waste and sediment from a construction site, and the cost-effective delivery of a development.

4 Farming Circumstances Methodology

4.1.1 Current national planning guidance does not provide direction on the potential effect of development on individual farm businesses. In the absence of such guidance, it is common for the Environmental Impact Assessment (EIA) process to continue to follow the direction given in Annex B of the now superseded Planning Policy Guidance Note 7 (PPG7) (Ref 5). The farming circumstances assessment therefore looks at the scale and nature of the farm business, land tenure, its various agricultural enterprises and any specific constraints the farm faces such as fly tipping. As well as direct impacts such as loss of land, the assessment looks for indirect impacts such as fragmentation of a remaining farm holding or the creation of nuisance for neighbouring land.

4.1.2 Information on each of the six farm businesses with land within the Sites was gathered by interviewing the agricultural occupant of the land. These interviews covered; -

a. total farmed area and tenure,

b. agricultural enterprises,

c. facilities and equipment,

d. labour,

e. constraints and

f. diversification.

5 Agricultural Land Classification Assessment

5.1 Climate

5.1.1 Climatological data for ALC are provided for 5km intersections of the National Grid by the Meteorological Office, in collaboration with the National Soil Resources Institute. The data from these points can be interpolated providing climate data for specific sites. Seven points were selected for the Sites to cover the geographic spread.

Table 5-1 Climate Data within the Sites

Reference point	Altitude (m)	Average Annual Rainfall (AAR) (mm)	Accumulated Temperature AT0 (day degrees)	Moisture Deficit Winter Wheat (mm)	Moisture Deficit Potato (mm)	Field Capacity days
TL 640 687	**15**	**576**	**1443**	**120**	**116**	**101**
TL 667 743	**5**	**579**	**1452**	**121**	**118**	**100**
TL 657 733	**10**	**581**	**1446**	**120**	**117**	**100**
TL 687 726	**10**	**583**	**1446**	**119**	**115**	**104**
TL 687 714	**15**	**582**	**1441**	**118**	**114**	**104**
TL 660 670	**20**	**582**	**1438**	**119**	**115**	**104**
TL 702 724	**15**	**587**	**1440**	**117**	**113**	**106**

5.1.2 The seven points show that there is little variation in the climatic factors pertinent to ALC assessment across the Sites.

5.1.3 The main parameters used in the assessment of an overall climatic limitation are Average Annual Rainfall (AAR) as a measure of overall wetness, and Accumulated Temperature (AT0) as a measure of the warmth of the Sites in the growing season.

5.1.4 Climate does not impose an overall limitation on ALC grade at the Sites. Climate does however have an important influence on the interactive limitations, soil wetness and soil droughtiness, both through the input of water to soil through precipitation, and the removal of water by crops through the growing season. With a site that is warm, dry and has light textured soils, soil droughtiness is the defining limitation for the majority of the agricultural land.

5.2 The Sites

5.2.1 The Sites are predominantly low-lying arable land that is level to very slightly sloping. Few watercourses are present, and many field boundaries have drainage ditches. Some rising ground is found to the east of the A11 and east of Worlington. The River Kennet passes between the Sunnica East and Sunnica West Sites, flowing into the River Lark to the north of the Sites. Given the lack of gradient and low elevation found at most of the Sites, achieving a suitable fall for agricultural drains would be difficult. However, the free draining condition of most of the Sites minimises the need for such drains.

5.2.2 The Environment Agency Flood Map for Planning shows some areas of the Sites in their highest flood risk category. These include land in the north of the Sites bordering the River Kennet, land between Chippenham Park and La Hogue Farm, and land near Snailwell.

5.2.3 This flood map does not provide the level of detail on flood frequency and duration by season used in the ALC system. Such detailed flood risk data is rarely available for a site and is subject to change by off-site factors such as changes in land management and flood defence works. Therefore, it is common to limit areas of ALC grading according to flood risk to locations where an elevated risk is clear, such as those identified by the Environment Agency map.

5.2.4 Although elevated flood risk can constrain ALC grade, at the Sites other constraints dominate. Flood risk is an additional limit to Grade 3b for some marginal areas alongside watercourses.

5.3 Soils and Parent Materials

5.3.1 The British Geological Survey Geology of Britain viewer (Ref 6) shows the Sites to be underlain predominantly by the Holywell Nodular Chalk and New Pit Chalk formations. Much of this has no overlying superficial deposits but there are significant areas with River Terrace deposits and some land with the Zag Chalk formation overlain with glacial till.

5.3.2 The Soil Survey of England and Wales soil map of Eastern England (Ref 7) shows the Sites are in an area of Swaffham Prior, Newport 4 and Moulton soil associations. A soil association is a grouping of soil types commonly found together in a landscape that can be mapped at 1:250,000 scale. These individual soil series can share broadly similar characteristics or can be contrasting soil types commonly found together such as a catena of soils from hilltop to valley bottom. Typical soils for all three associations are light textured and freely drained. Descriptions of these three soil associations and their component soil series can be viewed on the Cranfield University Land Information System (LandIS) (Ref 8).

5.3.3 A detailed ALC field survey by Baird Soil, RAC and MAFF found soils that correspond with the parent material types and soil associations described above, namely light textured shallow soils over chalk, and light textured soils developed in sands and gravels with some lenses of finer textured material.

5.3.4 Some topsoils have a loamy medium sand texture, and this land is limited to a maximum of ALC Grade 2 owing to the structural instability of such a light surface material. However other limiting factors outweigh this.

5.3.5 Volume of large stones in the topsoil and restricted soil depth also limit ALC grade on parts of the Sites. Where these limitations occur the shallow and/or stony soil profile tends to also have a droughtiness limitation to an equal or lower ALC grade.

5.4 Interactive Factors

5.4.1 Light texture, high stone content and shallow depth are all factors that contribute to limiting the volume of crop available water the soil can retain. The same light texture and good drainage reduce the frequency and duration of periods when

the soil surface is wet, and the vulnerability of the soil to persistent structural damage while wet.

5.4.2 In conjunction with the relatively warm and dry climate across the Sites, drought stress is a significant constraint on the quality and versatility of the agricultural land. The majority of the land within the Sites is limited to Grades 3b and 4 by soil droughtiness. Only marginal areas of the Sites have land that is limited to grade by soil wetness and workability.

5.4.3 Irrigation enables farmers to mitigate drought stress for the light, free draining soil. In addition, access to irrigation enables growing of high margin crops such as onion, carrot and potato within light textured soil that does not adhere to the crop as clayey material would. However, the irrigation is dependent upon the high capital and labour cost for running irrigators, and access to a licence to abstract water from a borehole or surface water course. In times of drought the licence to abstract water can be curtailed at the time of greatest demand. Non-agricultural demands on aquifers are also rising. Several landowners within the Sites have constructed large irrigation reservoirs on their farm that can store additional water abstracted over winter when water demand is lower, giving up agricultural land to reduce the risk of an irrigation water shortfall.

5.4.4 The MAFF survey (Annex B) notes that soil droughtiness was the dominant limitation for their survey area, and that ALC grades were raised by one grade or subgrade to reflect the availability of irrigation. However, after this MAFF survey work in 1991 and 1992, the approach to ALC changed to stop upgrading drought limited land where irrigation is available.

5.4.5 An email dated 18 June 2019 from Natural England confirms the above, stating that irrigation is no longer used to reduce ALC drought limitation (Annex C). Therefore, the drought limited land assessed by MAFF that sits within the Sites has been corrected as follows:

a. Grade 3b to Grade 4;
b. Grade 3a to Grade 3b; and
c. Grade 2 to Grade 3a.

5.5 Agricultural Land Classification

5.5.1 Field data for the Baird Soil assessment is given in Annex F along with profile descriptions and topsoil laboratory reports for six representative soil inspection pits.

5.5.2 The combined detailed surveys within the Sites found agricultural land in ALC Grades 3a, 3b and 4. With no land in Grades 1 or 2, the Grade 3a is the only Best and Most Versatile agricultural land within the Sites. The distribution of ALC grades within the Sites is shown on Figures 12-2 and 12-3 of the Environmental Statement **[EN010106/APP/6.3]**, with areas given in **Table 5-2** below. **Table 5-3** shows the areas of ALC grades assessed by the three separate survey teams.

Table 5-2 ALC Grade Distribution

ALC Grade	Area (ha)*	%
3a	37.3*	3.8
3b	493.3	50.3
4	393.4	40.1
Non -agricultural	57.0	5.8
Total	**981.0**	**100.0**

**Note: Due to a lack of survey data at Burwell National Grid Substation Extension for the reasons set out in Section 2, it has been assumed as a worst case that this land is BMV land. The total presented in this table does not include the area of land required for Burwell National Grid Substation Extension (less than 1ha) because this is based on an assumption (and this table presents collected data).*

Table 5-3 ALC Grade Distribution by Survey

Surveyor	ALC Grade	Area (ha)
Daniel Baird Soil Consultancy Ltd	3a	8.8
	3b	470.4
	4	390.1
	Non-Agricultural	54.9
	Sub Total	924.2
MAFF	3a	28.5
	3b	22.9
	Non-Agricultural	0.2
	Sub Total	51.6
Reading Agricultural Consultants	4	3.3
	Sub Total	3.3
Non-agricultural land that does not fall within the study area for surveys undertaken by any party (e.g. public highways included within the Order limits)	Non-Agricultural	1.9
	Sub Total	1.9
Total		**981.0**

5.5.3 Grade 3a land is found at three locations within the Sites, covering a total area of 37.3ha. The largest block of Grade 3a land is found to the east of the A11 in the area assessed by MAFF. The MAFF survey work found light textured soils over rootable chalk rubble with impenetrable chalk below. Soil droughtiness is the

main limiting factor placing this land in Grade 3a. The MAFF assessment upgraded this area to ALC Grade 2 owing to irrigation; however, moderating a drought limitation for irrigated land in this way is no longer supported by Natural England.

5.5.4 Two more small areas of Grade 3a land are found in the Sites, one to the north near Worlington and one to the south west near the Foxburrow Plantation. This land is similar to the Grade 3b land surrounding it, limited to grade by soil droughtiness. However, the soil profile has sufficient additional clay and/or depth to cross the threshold into the lower soil droughtiness limitation to Grade 3a.

5.5.5 Grade 3b land covers 493.3ha within the Sites. Soil profiles are typically light textured and freely drained with a parent material of chalk or superficial deposits of sands and gravels found from half a meter depth. In places there are also limitations to Grade 3b for restricted depth and a high volume of large stones (retained by a 20mm sieve) in the topsoil.

5.5.6 In addition, smaller areas of Grade 3b land are found in the north of the Sites bordering the watercourse, and to the west of the Sites near Snailwell where the land has a soil wetness limitation. The land is extremely low lying with impeded drainage, elevated risk of flooding and groundwater wetness issues.

5.5.7 Grade 4 land covers approximately 393.4ha of the Sites. Soil profiles are broadly similar to those for the majority of the Grade 3b drought limited land described above, but with shallower and/or lighter soil profiles that further limit the volume of crop available water that can be retained. Soil droughtiness is the dominant factor restricting this land to ALC Grade 4.

5.5.8 Non-agricultural land in the Sites comprises farm buildings and hard standing, woodland and tree belts and a reservoir. 1.9ha of the non-agricultural land area comprises areas for highways improvement works. These areas do not contain any agricultural land and sit outside of all three separate ALC surveys covering the Sites.

5.6 Soil Resources

5.6.1 As described above, soils within the Sites are predominantly light textured over the geology of chalks and river terrace deposits. A few areas of distinct variation can be found such as the low-lying land close to Snailwell but the extent of these is fragmented and marginal.

5.6.2 The majority of the agricultural land is in arable rotation with annual cultivation. The light textured soil has been aerated by cultivation enabling soil organic matter to be rapidly metabolised, falling to a low equilibrium regardless of return of organic matter to land.

5.6.3 The light textured soil material is vulnerable to deep compaction of subsoil from high axle loads such as grain trailers and harvesters. Compaction of the topsoil can be easily rectified by cultivation but with increasing depth rapidly becomes more difficult to rectify. Such deep compaction can impede root development, limiting the crop available water held by the soil.

5.6.4 The area surveyed by RAC was assessed as part of a minerals planning application. Although the minerals site was consented the area within the Sites was not part of the opencast works. The remains of borrow pits can be seen as scattered circular depressions across parts of the Sites, the location of historic extraction of minerals.

5.6.5 Under the Scheme the existing soil resource below the solar panels will remain in place with a year round grass cover grazed by sheep or mechanically maintained. This perennial grass cover will prevent bare soil surfaces that are vulnerable to erosion, enable soil organic matter to recover to a new higher equilibrium and encourage the development of deeper, more extensive root networks in the subsoil that will ameliorate subsoil compaction. The solar farm will in effect be an expected 40 year fallow period safeguarding the soil resource and enhancing its future productive capacity.

5.6.6 For cable routes both within the solar PV area and to the grid connection point, cables will be laid in trenches with an imported backfill of stone free material to protect the electrical cable, with the excavated top and subsoil returned. As for agricultural land quality, the soil resource over the proposed cable route has not been assessed owing to the narrow width of the affected corridor trenching disturbance. It is expected that the soil resource over the proposed cable route would therefore not be detrimentally affected.

5.7 Farming Circumstances – the Sites

5.7.1 Six farm businesses occupy farmland covered by the Sites. Two of these hold land at the Sunnica West Sites and four at the Sunnica East Sites. The extent of land occupied by these six farm businesses is shown on Figure 1 in Annex E of this Appendix.

5.7.2 All of the farm businesses can be described as predominantly arable dry land units that include high margin irrigated crops (e.g. potato, sugar beet, onion) among rotations of cereals. Light, well drained land with access to irrigation gives a high degree of control over timing and quality for high moisture content crops such as potato and sugar beet. The irrigation is however subject to access to adequate supply from the aquifer or a water course, controlled by abstraction licences. In addition to the capital cost of irrigation equipment, several of the farms have invested in reservoirs to store water abstracted over the winter months for application during the growing season.

5.7.3 Sugar beet cropping is dependent on economic proximity to a processor. At present, British Sugar is the only significant processor in the UK, with four plants, the closest of which is at Bury St Edmunds.

Farm Business A

5.7.4 Farm Business A is a large arable unit growing cereals and irrigation supported potato and sugar beet crops. The farm occupies an area of 775ha, of which 387ha fall within the Sites, the majority of which is owner occupied but also includes land owned by a close relation and held on a Farm Business Tenancy. 25 ha of the land is held on a share farming arrangement with a third party. Most of the land is managed through use of contractor services rather than with the farm's own labour and equipment.

5.7.5 Within the Sites the Farm Business A land is predominantly owner occupied but includes the 25ha held on the shared farming arrangement. The land to the west near Snailwell is the land owned by a close relation.

5.7.6 There are three farm units comprising Farm Business A. One within the Scheme, one on the edge and the main centre of operations half a mile distant.

5.7.7 Arable land is managed on rotations of combinable cereals with sugar beet and potato. The potato and sugar beet crops are dependent upon irrigation for yield and quality.

5.7.8 There are no major diversified uses of farm buildings or agricultural land such as office and commercial premises. Chippenham Hall, which is outside of the Sites, includes apartments let to third parties and has reception rooms and gardens used for a limited number of events and weddings, mostly limited to the summer months.

5.7.9 The farm has some land in a mid-tier agri-environmental scheme at present but this expires at the end of December 2021.

5.7.10 There is some occasional fly tipping and nuisance from trespass on land but no serious problems.

5.7.11 The farm business employs the two landowners part time. Landwork is carried out by the contract farmer.

5.7.12 The three farm yards have a variety of general purpose stores and two grain stores for approximately 2000 tonne. As all landwork is carried out by contractors the farm does not have any significant machinery such as a combine harvester or high work rate tractors.

5.7.13 Irrigation is critical to the potato and sugar beet cropping. The farm has an abstraction licence for 227,250,000 litres supported by a reservoir on the farm and a buried mains distributing water to the owner occupied fields.

Farm Business B

5.7.14 Farm Business B is the owner occupier of an area of 206ha of which approximately 52ha are in the Sites. The main centre of operation is La Hogue Farm.

5.7.15 Most of the land is in arable rotation growing combinable crops with potato and sugar beet in the rotation. All land work is undertaken by agricultural contractors. A relatively small area of pasture is maintained close to the La Hogue Farm unit.

5.7.16 Potato and sugar beet crops are dependent on irrigation, the farm has a borehole and abstraction licence, with a ring main to distribute the water to the arable fields.

5.7.17 As contractors undertake all land work the farm has no significant machinery of its own and barns are limited to general purpose stores rather than specialist buildings such as grain stores.

5.7.18 A farm shop and café business is a diversified enterprise for Farm Business B, also located at La Hogue Farm. One other diversification is a small commercial shoot on the land running eight days a year.

5.7.19 There are no agri-environmental schemes or commitments for Farm Business B land.

5.7.20 The farmer reports no major nuisance from trespass or fly tipping, the worst problem being litter such as fast food and drink containers dropped around the main farm gate.

Farm Business C

5.7.21 Farm Business C is the owner occupier of approximately 261ha, 223ha of which sits within the Sites. The main centre of operations is at Lee Farm, with land and livestock all managed by third parties. The farm land is used to rotate wheat, onion, potato and sugar beet crops along with outdoor pigs.

5.7.22 The onion, potato and sugar beet cropping is heavily dependent on irrigation. Water is abstracted under licence from the watercourse over winter and stored in the farm's reservoirs for use in the growing season.

5.7.23 The farmyard and buildings are used to support a construction plant enterprise, with no other diversification reported.

Farm Business D

5.7.24 Farm Business D occupies an area of approximately 1,376ha. Of this, 486ha are owner occupied with the rest occupied on a variety of insecure agreements, mostly on 3 year farm management agreements. Approximately 113ha of this farm are included within the Sites.

5.7.25 Land shown as Farm Business D within the Sites is owner occupied and is an outlying parcel from the main base of operations approximately 5 miles distant. The Sites takes all of the agricultural land in this parcel so Farm Business D will not be left with a smaller outlying land parcel at this location.

5.7.26 The primary enterprises for the farm are potato, sugar beet and cereals, all managed in hand.

5.7.27 Secondary enterprises are onion, carrot and parsnip crops where land is leased and water sold to a 3rd party grower. The potato, sugar beet, onion, carrot and parsnip cropping is all highly dependent on irrigation for both yield and quality.

5.7.28 There are no diversified enterprises.

5.7.29 Farm Business D employs five full time staff including a farm manager and a trainee. In addition, the farm employs three casual labourers over May to October, and five to six seasonal workers through a gangmaster.

5.7.30 There are no farm buildings within Farm Business D at the Sites. Facilities at the main farm unit include a 5,000 tonne potato store and grain stores.

5.7.31 The farm owns the machinery needed to carry out all cereal and potato work, including a towed potato grading line running behind the harvester.

5.7.32 At the Sites the farm owns a 25 million (m) gallon (113.5m litre) reservoir and a borehole with a licence to abstract 15.6m gallon (71m litre) over summer. At present this water can be used to support cropping on neighbouring land as well as the owner-occupied land within the Sites.

5.7.33 The farm business manages a very large area of land by entering into farm management agreements with other landowners, in particular for the potato, sugar beet and cereal cropping it specialises in. It also lets land to third party specialists growing other high margin crops such as onion and parsnip. The unit is therefore dynamic as well as large, routinely managing changes to the fields cropped, and the total area under management.

5.7.34 The farm manager reports no particular nuisance issues such as trespass or fly tipping on the farm.

Farm Business E

5.7.35 Farm Business E occupies 137ha of owner-occupied land. Of this area, approximately 100ha fall within the Sites. The land forms a single block with the farm buildings adjoining.

5.7.36 The land is managed using agricultural contractor services for all landwork. Most of the land is in arable production with a rotation that includes cereals, onion, potato, sugar beet and whole crop maize for anaerobic digestion. Outdoor reared pigs are sometimes included within the rotation, the pigs belonging to a separate farm business leasing the land.

5.7.37 The onion, potato and sugar beet crops are dependent on irrigation for both yield and quality. The farm has its own borehole and abstraction licence with a ring main distributing the water to each of the arable fields.

5.7.38 Diversification is limited to informal lets of a small area of paddocks to local horse and pony owners. This comprises an area of approximately 12ha (30 acres) with no livery services.

5.7.39 Arable land is in an environmental stewardship scheme with payments for conservation of hedgerows and field margins.

5.7.40 The farm has previously had problems with hare coursers about ten years ago. This problem is now suppressed through supervision, filling hedgerow gaps and locking gates to deter access.

5.7.41 The farm employs one family member who is past retirement age, on a part time basis. With all landwork carried out by contractors the farm has no significant machinery. The farm buildings include assorted general purpose barns and a grain store. Onion, potato and sugar beet crop storage and grading is carried out at other farms.

Farm Business F

5.7.42 Farm Business F occupies approximately 730ha of which 584ha are owner occupied. The remainder is occupied on a variety of shorter term arrangements such as contract farming and annual licence agreements. All the Farm Business F land within the Sites (approximately 107ha) is owner occupied.

5.7.43 The farmyard to the south of the Farm Business F section of the Sites is the main centre of farm operations. The business holds another farmyard to the south of A11 (Park Farm).

5.7.44 Early salad potatoes are the primary crop, with main crop potatoes, onions and early carrots also rotated with combinable crops.

5.7.45 Outdoor pigs and overwintering sheep are inserted into the rotation, with all livestock owned by other farm businesses. Rotations can also include whole crop maize for anaerobic digestion.

5.7.46 Irrigation is critical for potato, onion and carrot cropping, both in terms of yield and quality. The farm has boreholes connected to a ring main serving the owner-occupied land at and adjoining the Sites but no reservoir storage of water. Boom irrigators are used which give greater precision in application, but are larger and more expensive than rain guns. Abstraction licences are held for 570 million litres taken between March and October. In a normal year the farm has adequate water from this licence to meet the requirements of the potato, onion and carrot cropping.

5.7.47 Farm Business F has land in Entry Level Scheme and Higher Level Scheme (ELS & HLS) environmental subsidy systems, including owner occupied land in and adjoining the Sites. HLS measures are rotational schemes and the farmer is confident they can continue to accommodate the HLS requirements on remaining land following the solar PV development.

5.7.48 The farm is an existing landlord for both solar PV and anaerobic digester renewable electricity generation. The solar PV covers approximately 16ha to the south of the main farm unit. In addition to leasing land for the anaerobic digester, the farm provides whole crop maize substrate to the digester and accepts digestate which is spread on the farmland. The anaerobic digester does not accept other material such as abattoir or municipal food waste.

5.7.49 Opencast extraction of aggregate and return of inert landfill is ongoing on the farm's land. Phased return of land following landfill has commenced with the first three phases now restored and in a remediation period of management prior to return to the farm for agricultural production. The farmer anticipates that the final ninth phase will start restoration and return in approximately ten years' time.

5.7.50 The Farm Business F owners have a number of residential properties but these are not residences with an agricultural tie or farm cottages, so have no interaction with the Scheme. Similarly, the owners of Farm Business F operate other business interests that do not make use of the farm land or buildings other than the farm office.

5.7.51 Public footpaths cross the farm's land to the north and the south. These can be associated with some trespass onto land, litter and theft at times but this is not a major concern for the farm business. Trespass and loose dogs from these footpaths can also be an issue for sensitive protected species that make seasonal use of some of these fields.

5.7.52 The farm employs fourteen full time staff in addition to two of the owners. Another six workers are employed seasonally. It possesses specialist harvester and bed forming equipment for the potato, onion and carrot cropping, in addition to self-propelled sprayer, combine harvester and high work rate tractors. The farm also has a specialist spreader for applying digestate (from the anaerobic digester) to land, and this is also used for contracting services on other farms. Farm buildings include a potato grading line, grain stores and onion storage for five to six thousand tonnes.

5.7.53 As for Farm Business D, Farm Business F is a large and dynamic unit that both provides contract farming services and lets land to third party farms, routinely managing change in the location and extent of land farmed.

5.8 Farming Circumstances – Cable Route

5.8.1 To gather information on farm businesses occupying land along the cable route, questionnaires were sent to 63 individuals identified through Land Registry information. Given that land can be jointly owned and an individual can hold title for multiple plots, it is anticipated that there are less than 63 separate units of land. Furthermore, several may not be occupied by a farm business. A blank copy of the questionnaire issued is attached as Annex D.

5.8.2 The questionnaires were posted on 16 July 2020. By April 2021, six responses had been received. Of these six, two are for land occupied by farm businesses. For the remaining four, one is for an outdoor activity park and three are for two separate equestrian units that are not commercial, managed for the occupant's own amenity.

5.8.3 Given the low number of responses received, assessment of cable laying effects on farm businesses is based on factors common to all lowland arable and livestock enterprises such as access and severance, security and loss of/disruption to productive use of land by the cable laying work both directly and indirectly.

5.8.4 Any cable laying work will of course involve consultation with landowners and agricultural occupants as part of a Construction and Environment Management Plan (CEMP). This consultation will include identification of any specific concerns for individual farm businesses and opportunities to minimise or avoid problems through timing and alternative provision.

5.9 Effect of Development on Farm Businesses

5.9.1 Development for each of the six farm businesses will result in the dominant land use changing from arable rotations incorporating high margin irrigated crops, to sheep grazing with solar PV and battery storage. At the end of the duration of consent (an expected 40 years), following decommissioning the arable land can revert to its current cropping regime, subject of course to the prevailing market, environmental and policy drivers at that time.

5.9.2 The farms differ in their use of agricultural contractors. The units that currently manage their own land in hand also provide contractor services to other farm businesses. Several of the farm businesses in the Sites use contractors for the management of all cropping on their land.

5.9.3 The potato, onion, sugar beet and carrot crops in particular favour the use of contractors as they require highly specialised harvesters and cultivators when compared with combinable crops that use the same harvester, seed drill etc. Potato crops also need to maintain a long gap in rotations (often seven years) to prevent the build-up of a damaging nematode pest. A potato grower restricted to their own land would be disadvantaged by a limited annual cropping area having to support the cost of the dedicated harvester and cultivators.

5.9.4 The units providing contractor services are routinely in the market for additional, replacement or superior land to support their cropping. Temporary loss of the Sites for the rotation of their crops can be factored into this annually shifting management. The temporary suspension of cropping within the Sites may result in a reduction in available suitable land for the contractors but this will be a fraction of the total agricultural area occupied by Sunnica Ltd as the specialist contractors are growing their crops within a rotation.

5.9.5 The farm businesses that use contractors for all land work on all crops (Farm Businesses A, B, C and E) would simply suspend such contracts for the duration of the Scheme, replacing them with the leases for the solar development.

5.9.6 Specialist farm infrastructure including irrigation facilities and stores within the Sites can still be productive. Any surplus capacity in grain, potato and onion stores can be leased to other growers. The right to abstract a volume of water can be traded to other water users within an aquifer, and the irrigation ring mains installed on the farms with reservoirs, can be used to transfer any surplus reservoir capacity for irrigation on neighbouring units.

6 References

Ref 1 Agricultural Land Classification of England and Wales: Revised guidelines and criteria for grading the quality of agricultural land. Ministry of Agriculture Fisheries and Food, October 1988.

Ref 2 Agricultural Land Classification: protecting the best and most versatile agricultural land (TIN049). Natural England, January 2009.

Ref 3 Working with Soil Guidance Note on Assessing Agricultural Land Classification Surveys in England and Wales (Guidance Document 1). British Society of Soil Science January 2021

Ref 4 Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, Defra 2011.

Ref 5 Planning Policy Guidance Note 7

Ref 6 Geology of Britain Viewer, BGS

Ref 7 1:250,000 Soil Map of England and Wales, Soil Survey of England and Wales 1983

Ref 8 Cranfield University Land Information System (LandIS).

Annex A Reading Agricultural Consultants Survey Report

11. AGRICULTURE

Introduction

11.1 The area proposed for sand and gravel extraction at Bay Farm, Worlington covers some 70 hectares of land, approximately 63 hectares of which is currently farmed primarily for root crops and cereals. The landscape is generally flat and there are established coniferous and deciduous tree belts on the majority of the field boundaries within the site.

11.2 The site lies within the Breckland Environmentally Sensitive Area (ESA) which is characterised by sandy soils in a mixed landscape of large arable fields interspersed with internationally important lowland heaths. The Breckland ESA Scheme aims to protect and, where possible, to enhance the distinctive landscape, wildlife habitats and archaeological interest of the area by encouraging traditional agricultural management practices.

11.3 This report sets out the potential impact that working the site would have on the agricultural production of the land and how potential negative effects would be mitigated against.

Potential Impacts

11.4 The working of site for mineral extraction could have the following impacts:

1. Loss of productive agricultural land -
   Large areas could be lost at any one time through working and restoring the site and also through the type of restoration proposed. Any effect on drainage, irrigation and soils may impact on the productivity of the land.

2. Damage to soil quality -
   Soil structure can be lost through poor handling of the material, storage, and spreading, and also trafficking over the site.

3. Impact on the holding -
   All of the above has a potential impact on the viability of the agricultural holding.

Agricultural Land Classification and Soil Resource

11.5 The area was surveyed by Reading Agricultural Consultants in July 2003 to determine the agricultural classification of the land and produced the following report.

Site and Climatic Characteristics

General features and landform

The site lies to south of Worlington and to the north of Red Lodge, Suffolk.

The area surveyed extends to about 68.5 hectares (ha) of which almost all is agricultural land (66.7 ha) in a mixture of horticultural cultivation growing potatoes and onions, or outdoor pig production. Irrigation is present within the site.

The remaining land (1.8 ha) comprises two areas of woodland and a disturbed mounded area. The site is bounded by either woodland or other agricultural land.

The highest ground is in the south and lies at an altitude of about 15 m aOD. The land then slopes gently towards the north to the lower ground which lies at an altitude of about 10 m aOD.

Surface form is mainly smooth to gently undulating. However in the west the land is more strongly undulating.

Soil parent materials and natural drainage

The main soil parent material across the site is sandy and gravelly drift, locally calcareous chalky drift, over chalk. The sand and gravel thins from west to east. Upper layers are typically dark brown and sandy over yellowish, sandy and gravelly lower layers.

Natural drainage is by free vertical percolation down through the soil profile layers.

Part of the northern section of the site has been disturbed by earlier gravel workings followed by clay deposition. This is known as Mortlocks Field. The clay fraction present in the unworked field is not typical of the rest of P48. Clay was extracted during the construction of the nearby Ely Ouse Water Tunnel and introduced onto the field in the hope of improving its quality. However, its integration into the soil structure has been unsuccessful and no significant improvement has been recognised.

Climatic factors

Climatic factors affecting land quality, especially by their interactions with soil factors, are set out below. These have been interpolated from the Meteorological Office's standard 5 km grid point data set for the representative location at TL 695717 at about 14 m aOD.

Average annual rainfall (AAR)	582 mm
Accumulated temperature >0°C (AT0)	1442 day °
Field Capacity Day regime (FCD)	104 days
Average moisture deficit -winter wheat (MD_w)	118 mm
Average moisture deficit - potatoes (MD_p)	114 mm

The local climate is warm and dry. The FCD regime is well below the national average for lowland England (150 days). The "key" crop adjusted moisture deficits are large.

Agricultural Land Quality and Main Soil Characteristics

Soil survey methods

The area has been surveyed by RAC in two stages; 1997 and 2003.

A total of thirty-three soil profiles were examined, eighteen during the 1997 survey and 15 during the 2003 survey, on a 100 m grid basis using an Edelman (Dutch) auger and spade at the approximate locations shown on Plan RAC 1. The overall observation density on the agricultural land is about 1 per 2 ha.

At each observation point, texture; significant stoniness, colours (especially gley mottle colours indicating seasonal wetness); density, degree of fissuring and macroporosity (together indicating structural conditions and permeability and rooting opportunities); free calcium carbonate; organic matter content (OM) and thickness were assessed for each main soil horizon to 1.2 m depth or to impenetrably stony layers whichever was the shallower.

Soil Wetness Class (WC) was mainly inferred from the presence or absence of, and depth to, greyish and ochreous gley mottling and poorly permeable subsoil layers at least 150 mm thick.

Agricultural Land Classification (ALC)

Soil, site and climatic constraints were evaluated mainly by reference to MAFF's 1988 revised ALC guidelines and criteria.

Droughtiness, from reduced soil moisture holding capacity and large annual moisture deficits, is the main limitation. This limitation constrains all of the agricultural land to grade 4, as shown on Plan RAC 2.

Brief description of the land grade

Grade 4

Soil profiles typically comprise dark brown, slightly stony, variably calcareous, sand (occasionally loamy sand) topsoils; over brown, slightly stony, sand (locally loamy sand) upper subsoils over yellowish brown, slightly stony, sand lower subsoils. In many places there are impenetrably stony, gravelly lower subsoils which occur at variable depth.

Laboratory analysis has shown that topsoil textures are predominantly of sand, although two were borderline to loamy sand and one was loamy sand. Land with sand topsoil is specifically excluded form grades 1, 2 and subgrade 3a, principally on the basis that they are prone to compaction and are susceptible to erosion and drought from poor moisture-holding characteristics. Wind erosion of the topsoil was observed during both field visits. The droughtiness of the majority of profiles examined is sufficiently severe to qualify for grade 4.

In Mortlocks Field, the inclusion of additional clay has resulted in sandy loam or sandy clay loam topsoil textures, which overlie predominantly sandy subsoils. However, despite being more loamy than elsewhere, the topsoils are dry and compact resulting in capping of the soil surface making cultivation difficult.

Soil Resource

Introduction

The objective is to categorise the different soil materials according to their compatible - or contrasting - properties. This is to assist optimum recovery of the more valuable parts of the soil resource so that the potential for successful re-use for agriculture (or any other vegetation-based restoration) can be realised.

The primary separation is between topsoil and subsoil. Secondary separations are made within the topsoil, principally according to different textures. Secondary separations are also made in the subsoil, mainly on the basis of depth over very stony material. The soil properties agreed to be most relevant as indicators of "soil quality" and constraining the future handling and beneficial re-use of soils on this site are:

- Particle-size class and organic matter content (soil texture)
- pH and major nutrient contents (Phosphorus (P), Potassium (K) and Magnesium (Mg))
- Total Nitrogen (N)

However, the last is a seasonally variable property, also strongly influenced by land use. Accordingly, the findings in that respect should be regarded as – at best – indicators of the relative amounts in different soil materials under different uses.

Following the field survey, representative topsoil and subsoil samples were taken from different fields and land uses to measure the soil properties listed above in the laboratory. Subsoils are mainly sand textured.

Topsoil Types (Plan RAC 3)

Field estimates, confirmed by laboratory analysis of particle-size distribution, suggest that the predominant "base" texture of the mineral fraction (i.e. excluding organic matter) is sand, although locally topsoils are borderline sand/loamy sand, loamy sand, sandy loam or sandy clay loam. The results from the 1997 survey are shown in Table 1a and those from the 2003 survey in Table 1b below.

Table 1a. Topsoil Texture 1997 Survey

1997 Survey	Sample 3	Sample 12	Sample 13	Sample 14
Determinand	Value % w/w			
Coarse sand (0.6-2.0mm)	7	1	3	3
Medium sand (0.2-0.6mm)	80	85	61	62
Fine sand (0.063-0.002mm)	8	9	24	23
Silt (0.063-0.002mm)	1	3	6	6
Clay (<0.002mm)	4	2	6	6
Textural Class	Sand	Sand	Sand/ loamy sand	Sand/ loamy sand

Table 1b. Topsoil Texture 2003 Survey

2003 Survey	Sample 11A	Sample 14A	Sample 15A
Determinand	Value % w/w		
Sand (2.0-0.063mm)	73	88	76
Silt (0.063-0.002mm)	9	4	10
Clay (<0.002mm)	18	8	14
Textural Class	Sandy clay loam/ sandy loam	Loamy sand	Sandy loam

The proportion of clay-sized particles (<0.002mm esd*) in the mineral fraction is in the range of 2-18%, with silt-sized particles (0.002-0.063mm esd*) varying between 1 and 10%. The relative proportions of sand-sized particles (0.063-2.0 mm esd*) vary between 73 and 95%.
*esd = equivalent spherical diameter

Two main topsoil types **Types A** and **B** have been identified. These are separated principally on the basis of differing textures.

Type A is dark brown, slightly stony (fewer than 15% stones by volume in most places), sand (locally borderline sand/loamy sand or loamy sand). The average working thickness is about 400 mm.

Type A estimated volume: approx. 222,000 m^3

Type B is dark brown, slightly stony, sandy loam or sandy clay loam. The average working thickness is about 400 mm.

Type B estimated volume: approx. 51,200 m^3

Table 2 below sets out the results from analysis.

Table 2: Topsoil Analysis

		Index			mg/l (Available)			OM	Total N
Sample	pH	P	K	Mg	P	K	Mg	% w/w	% w/w
2A	7.3	4	2-	2	66.2	135	50	1.7	0.092
6A	7.4	4	3	2	68.6	284	55	1.7	0.106
7A	7.0	3	2+	2	44.6	196	51	2.8	0.120
8A	7.4	4	2+	1	45.8	236	32	2.2	0.097
11A	8.3	4	1	2	46.6	111	58	1.3	0.059
13A	7.3	3	1	1	44.8	79	42	1.3	0.059
14A	7.9	5	1	1	92.2	83	30	0.9	0.049
15A	7.8	4	5	3	69.6	675	107	2.4	0.184

Discussion of results

- The topsoils are neutral (pH range 6.6-7.5) to alkaline (pH >7.5)
- Available P concentrations are moderate to high. A concentration of less than 7mg/l, is regarded as a key factor in the successful establishment of species-rich (biodiverse) vegetation. The P concentrations in the fields sampled greatly exceed that requirement.
- Available K concentrations, often a function of fertiliser use, are mainly low to moderate, although one sample was high.
- Available Mg concentrations are also low to moderate.
- The organic matter content of the topsoils sampled range from 0.9 to 2.8% w/w and are typical of lowland arable soils.
- The total N content is related to organic matter content: the two largest amounts of total N are found in fields containing outdoor pigs.

Subsoil Types (Plan RAC 4)

Texturally there is one main subsoil type, **Type A**. Field estimates suggest that the predominant "base" texture of the mineral fraction (i.e. excluding organic matter) is sand.

Type A subsoil typically comprises brown or yellowish brown, slightly stony, sand upper subsoils over yellowish brown, slightly stony, sandy lower subsoils or moderately to very stony, sandy lower subsoils. The thickness of slightly stony, sandy subsoil is shown in cm on Plan RAC 4.

Table 3 below sets out the results from analysis.

Table 3: Subsoil Analysis

		Index			mg/l (Available)			OM	Total N
Sample	pH	P	K	Mg	P	K	Mg	% w/w	% w/w
2B	7.2	3	2-	1	40.6	172	30	0.7	0.042
6B	7.8	3	1	1	26.2	102	42	0.9	0.059
7B	5.7	1	1	1	12.8	63	35	1.1	0.033
8B	8.5	2	1	0	20.8	76	23	0.4	0.022
11B	8.2	1	1	1	10.2	64	27	1.0	0.045
13B	6.9	2	0	0	21.8	45	23	0.6	0.038
14B	7.9	3	0	0	33.2	30	12	0.1	0.015
15B	8.1	1	0	2	10.0	37	62	0.6	0.054

Discussion of results

- Most of subsoils are neutral (pH range 6.6-7.5) to alkaline (pH >7.5), although in one location the subsoil is slightly acid (pH range 5.6-6.5)
- Available P concentrations are generally lower than those of the topsoil but still higher than <7.0 mg/l that is regarded as optimal for the successful establishment of species-rich vegetation.
- Available K concentrations are low to moderate.
- Available Mg concentrations are generally low and lower than those of the equivalent topsoil
- The organic matter content of the subsoils sampled is lower than those of the topsoil (0.1-1.1%).
- The total N content is related to organic matter content though all amounts are generally lower than in topsoils.

The topsoils and subsoils would however be suitable for use in restoration of land to agriculture or to support tree planting.

Agricultural Assessment of the Proposals

Best and Most Versatile land

11.6 The above report confirms that the soil is light and sandy in nature and heavily dependant on irrigation. It concludes that the soil's droughtiness is the main limitation and that it constrains all of the agricultural land within the site to grade 4. MAFF Agricultural Land Classification Booklet 1988 defines Grade 4 as poor quality agricultural land. It describes it as:

"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."

11.7 The land is not therefore best and most versatile agricultural land and its permanent loss would not be contrary to national or local polices on the protection of that land. With irrigation the land is capable of supporting the production of high value roots crops and it is proposed to restore half of the site back to this use to ensure productive management of the land. This has already been demonstrated by the previous working and restoration of the area proposed as the plant site.

Heathland

11.8 The potential for restoring the site to heathland was an issue raised by the Minerals Local Plan. The above soil resource analysis shows that the soil in the site is too alkaline following a long history of intensive agricultural production and is not considered suitable for heathland restoration. The proposed restoration scheme is designed to be sympathetic in the landscape and to enhance wildlife habitats in keeping with the existing Breckland landscape.

Implications of phased working & restoration

11.9 As stated above, approximately 63 hectares of the site is currently farmed. The remaining land is covered by coniferous tree belts.

11.10 The site would be worked and restored progressively with a minimum area of land open at any one time. The phases of working are relatively small and well defined and would enable a large area of the land to continue in agricultural production. A schedule of working and restoration is included as Appendix 1 in Section 3. This shows that there would be a maximum of three phases open at any one time plus the plant site. The average size of each phase is approximately 6.7 hectares ranging from 4.1 to 9.4 hectares. The area lost to production at any one time is on average 25 hectares. The maximum area (i.e. phases 2, 3 and 4) is 29 hectares.

Normally only two phases plus the plant site would be disturbed by the workings i.e. on average 18 hectares for a 2-3 year period. The largest phase is Phase 3 which it is estimated would take some 4-5 years to complete extraction and restoration.

11.11 It should be noted that the figures quoted above are temporary losses during working, however, it is proposed to restore only half the site (approx. 30 hectares) back to a quality suitable for an arable afteruse. This would enable cultivation of the land in a way similar to existing practices. One-third is proposed to be restored to permanent pasture surrounded by deciduous woodland and one-sixth to ponds surrounded by wet woodland. From the 63 hectares currently in production, some 76% (48 hectares) of that land would be returned to an agricultural use suitable for arable and grazing leaving the remaining 24% (15 hectares) being restored to mixed woodland, wet woodland and ponds.

Preservation of soil quality

11.12 Soil would be handled in accordance with best practice as detailed in the Good Practice Guide for Handling Soils issued by MAFF April 2000.

11.13 The soil would be stripped using a 360° tracked excavator and transported to the appropriate area by dump trucks. Topsoil would be stripped to depths of 40cm and subsoil to depths of 60cm and each would be stored separately in clearly defined areas. Topsoil mounds would not exceed 3 metres in height and subsoils mounds would not exceed 5 metres in height. Clearly defined routes would be determined for the movement of materials in order that they do not traffic over areas of topsoil or recently restored areas.

11.14 The first area to be stripped is the processing plant area, here the topsoil would be stripped and used to form 3 metre high earth screening bunds along the northern and southern boundaries of the plant site area. The subsoil would be stripped to form a 5 metre high bund on the eastern boundary. The soil bunds would be seeded with grass and be subject to a maintenance regime including topping and weed control. The western end of the plant site would also be lowered by some 2-3 metres to provide a more even level across the processing area. Surplus subsoil material would be stored at the eastern end of the plant site area for use in the restoration of Phase 1.

11.15 Following these initial works the proposed phasing allows, as far as is practical, soil stripping and progressive restoration without the need for storage thus avoiding double handling of material and at the same time minimising potential deterioration of soil quality during storage. The main area where there would be a need to store material would be during the working of phases 3 and 4. Here, owing to the higher level of the water table at the northern end of the site, there is a need for more indigenous restoration material in Phase 4 to raise the final restoration levels above the maximum ground water level. It is therefore proposed that the phased working moves south of the plant site to Phase 3 where the surplus overburden is available

for the restoration of Phase 4. This material would be stored on the additional soil storage area prior to being used in Phase 4.

11.16 Soil would be replaced in accordance with guidance using excavators and dump trucks. Subsoil would be transported to the appropriate area by the excavator or dump truck and placed in windrows. The material would be spread across the site using a traxcavator to a depth of 60cm. During the replacement of soil particular attention would be paid to avoid compaction. Ripping would be used to create an open structure in each successive layer. Topsoil would be replaced in a similar fashion using the excavator and dump truck to transport the material and place it in windrows prior to the soil being spread with a traxcavator. Topsoil would be spread to a depth of 40cm.

11.17 Following the replacement of topsoil, the restored area would be subsoiled using a winged agricultural subsoiler to remove any remaining compaction.

11.18 The handling, movement and re-spreading of topsoil and subsoil would take place when the soils are in a suitably dry and friable condition so as not to cause compaction, smearing or loss of soil structure.

Use of recycled soils

11.19 Imported construction and demolition materials, including soils, would be brought to the site for recycling. Soils would be screened from mixed demolition materials such as bricks and concrete. All soils would be screened before their use in site restoration to ensure the quality of the materials and where necessary blended to achieve the necessary restoration medium.

Farm structure and viability

11.20 The agricultural holding comprises some 1800 acres (728 hectares), 1500 acres (607 hectares) of which is productive agricultural land producing high value irrigated root crops. The land is cropped on a six year rotation of potatoes, onions, carrots, parsnips, and two years of cereals. The cereals include wheat and barley and are grown for seed production. Sugar beet is also grown and outdoor pig production is used as sweepers behind the root crops. The remaining area is woodland belts which were initially planted in order to provide shelter to improve agricultural production. The site represents some 9.6% of the total land holding and its temporary loss is not considered to affect the economic viability of the farm.

11.21 Whilst working the site the estimated maximum area temporarily lost at any one time would be 29 hectares. This represents less than 5% of the total area of the holding currently in agricultural production.

11.22 From the 63 hectares of the application area currently in agricultural production, the proposed final restoration of the site would result in some 48 hectares of that land

being returned to an agricultural use suitable for arable and grazing (30ha arable and 18ha grazing) leaving 15 hectares to mixed woodland, wet woodland and ponds. This would result in the loss of 5.4% of land suitable for arable agriculture within the holding. The loss of agricultural land (for arable or grazing) would be 2.5% of the holding which is proposed as woodland and ponds.

Land drainage and irrigation

11.23 The land is generally flat ranging from 17m AOD in the south to 9.5m AOD in the north. The sandy soils and underlying sand and gravel means the site drains naturally into the underlying chalk strata. The proposed restoration north of the plant site allows positive drainage to the wet woodland area to the north.

11.24 There is a ring main irrigation system around the land holding to the north of the A11. A plan is attached in Appendix 1 which shows its distribution. This a system of pipes and hydrants which supplies water for irrigation purposes for cultivation of root crops. Part of the system crosses the application site however due to the circular nature of the system parts can be disconnected and added where necessary. The phased working of the site would allow the irrigation system to be modified where necessary so that working of the site would not affect the irrigation of land still in agricultural production.

Preventing the spread of animal/plant diseases

11.25 The working of the site would be carried out in accordance with any requirements issued by DEFRA on the spread of animal diseases. Appropriate biosecurity measures would be put in place where necessary.

11.26 With regard to the sugar beet disease rhizomania, this is no longer classified as a notifiable plant disease and is therefore not a relevant site constraint. On 1st April 2002, the UK (except Northern Ireland) gave up its protected zone status. It is therefore no longer a quarantine disease and no statutory measures are required to be taken for its control.

Suggested Aftercare Strategy

11.27 It is proposed that half of the extraction site would be capable of producing good yields and quality of arable and root crops after restoration. The area to the north of the plant site is proposed to be restored to pasture which would be grazed by sheep or cattle.

11.28 Following completion of restoration operations in each phase that particular phase would enter a 5 year aftercare period.

11.29 An aftercare scheme would be prepared with the objective of creating good physical characteristics as far as it is practicable to do so.

11.30 An outline strategy would be prepared at least three months prior to commencement of aftercare as detailed in MPG7 (Mineral Planning Guidance: The Reclamation of Mineral Workings).

11.31 An outline strategy of the commitments for the 5 year aftercare period would cover the following:

1. Timing and pattern of vegetation establishment

A brief description of sequence of vegetation establishment over the full aftercare period.

2. Cultivation Treatments

An outline of the range of cultivations likely to be undertaken.

3. Secondary Treatments.

Commitments to undertake secondary treatments such a subsoiling and stone picking would be outlined.

4. Drainage

A commitment in principle to undertake under-drainage if necessary.

5. Management of soil fertility, weeds etc.

Outline of the measures for improving soil fertility and control of weeds.

6. Irrigation and watering

Details would be provided where necessary on alternations to existing irrigation patterns.

11.32 A detailed programme for the forthcoming year would be prepared and a final report would be produced at the end of the aftercare period with any recommendations for future management on the site.

Conclusions

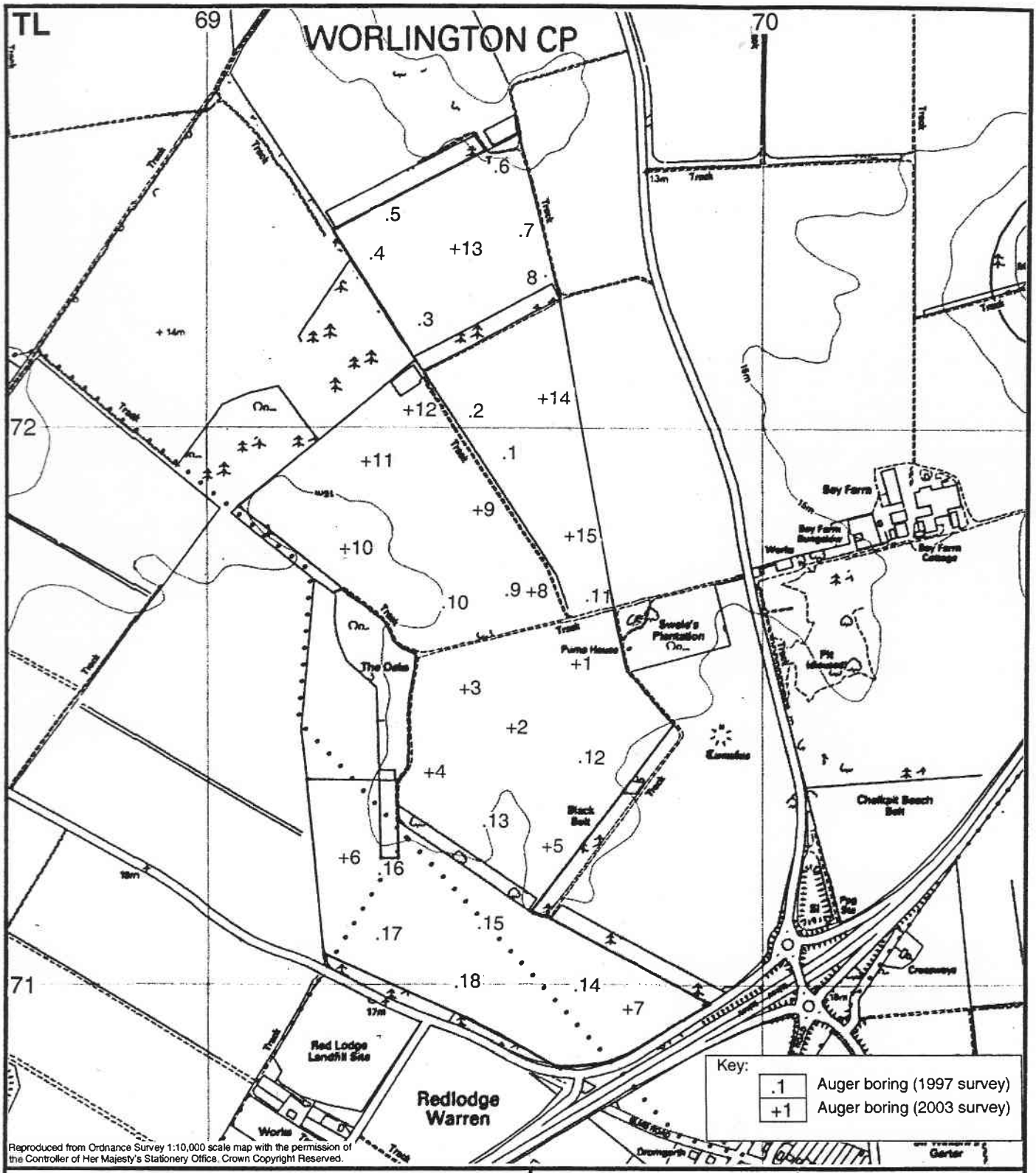
11.33 The site has been classified as Grade 4 agricultural land and is therefore not best and most versatile agricultural land. However, the proposed extraction of sand and gravel and restoration of the site would result in the loss of an area of currently productive agricultural land in order to provide a more diverse range of habitats and to improve the biodiversity of the area.

11.34 Best practice would be adopted in the handling, movement and respreading of topsoil and subsoil in the site to preserve its structure and quality.

11.35 A policy of progressive working and restoration would ensure that the minimum area is lost to production at any one time.

11.36 Recycled soils would be utilised to raise the levels above the maximum ground water level where possible and to soften the gradients to provide restoration contours suitable for arable afteruse.

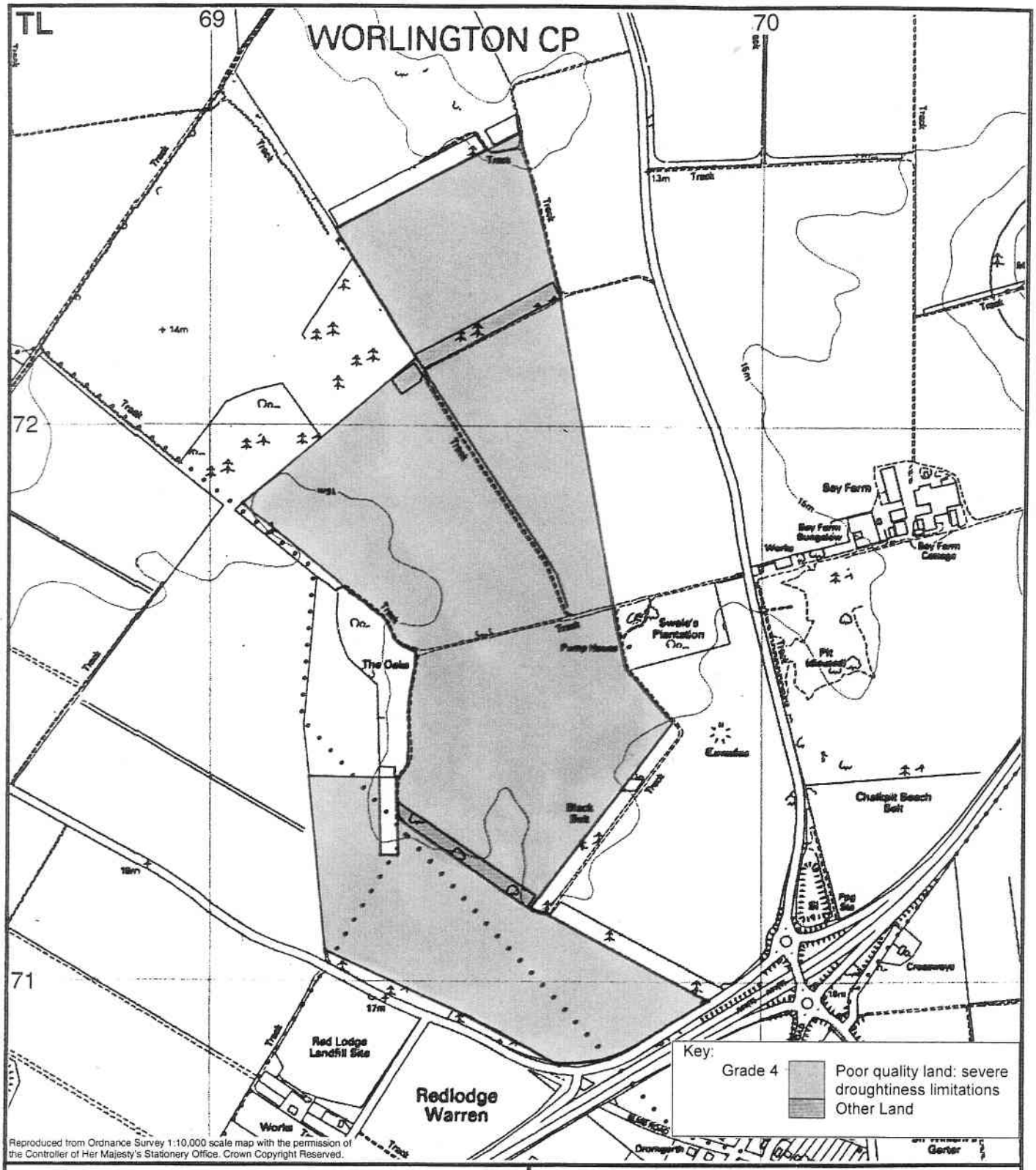
11.37 The proposal would not effect the viability of the holding and the restoration proposals will result in 76% of the currently productive land being restored to land suitable for arable production or grazing.



Plan RAC 1: Observation Points (approximate locations)

Site P48
Bay Farm
Worlington
Suffolk

Reading Agricultural Consultants
Races Farm, Aston Street, Aston Tirrold, Didcot, Oxon.
OX11 9DJ Tel: (01235) 851515 Fax: (01235) 851511

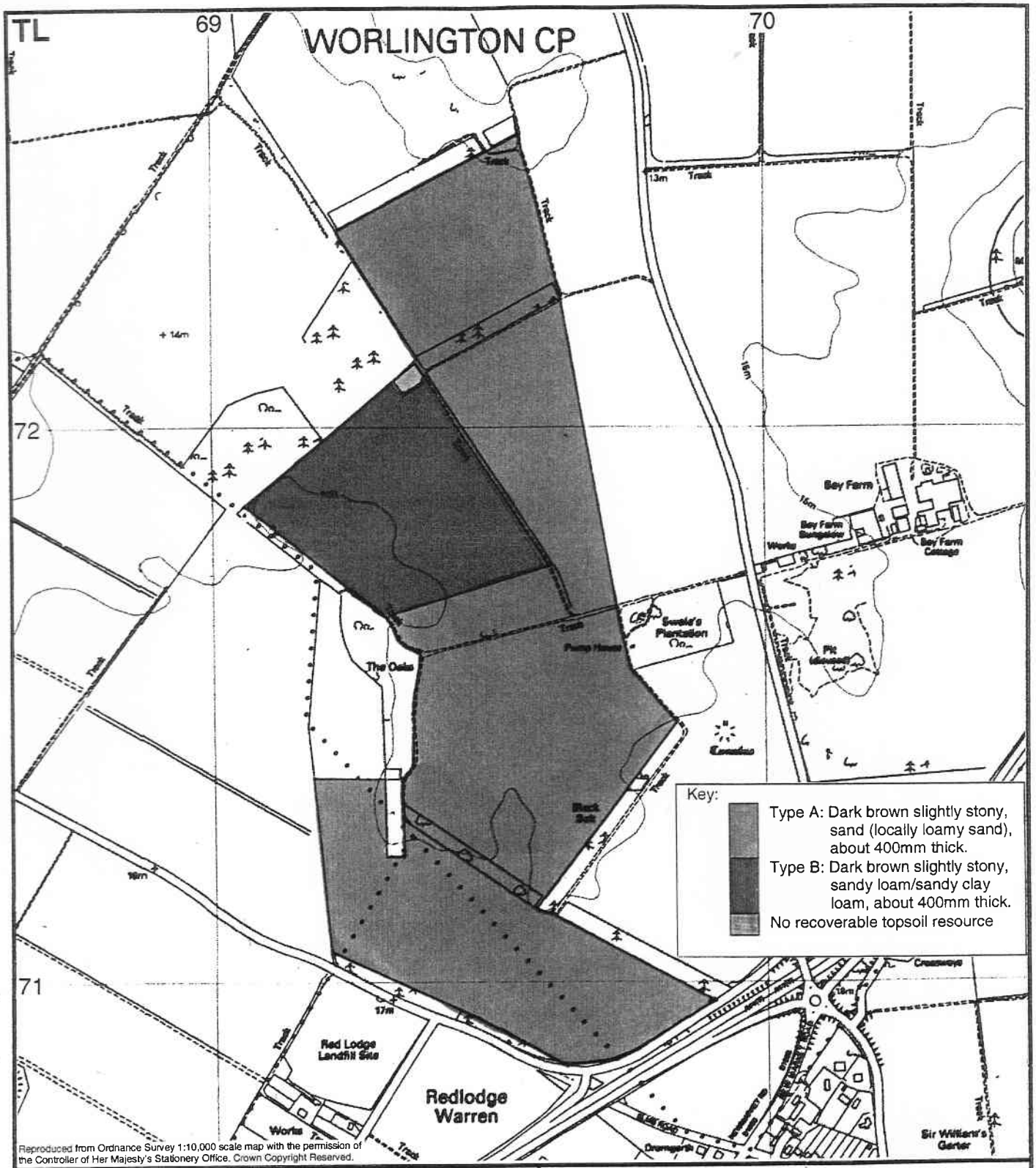


Plan RAC 2: Agricultural Land Classification (ALC)

DICKERSON Ltd.

Site P48
Bay Farm
Worlington
Suffolk

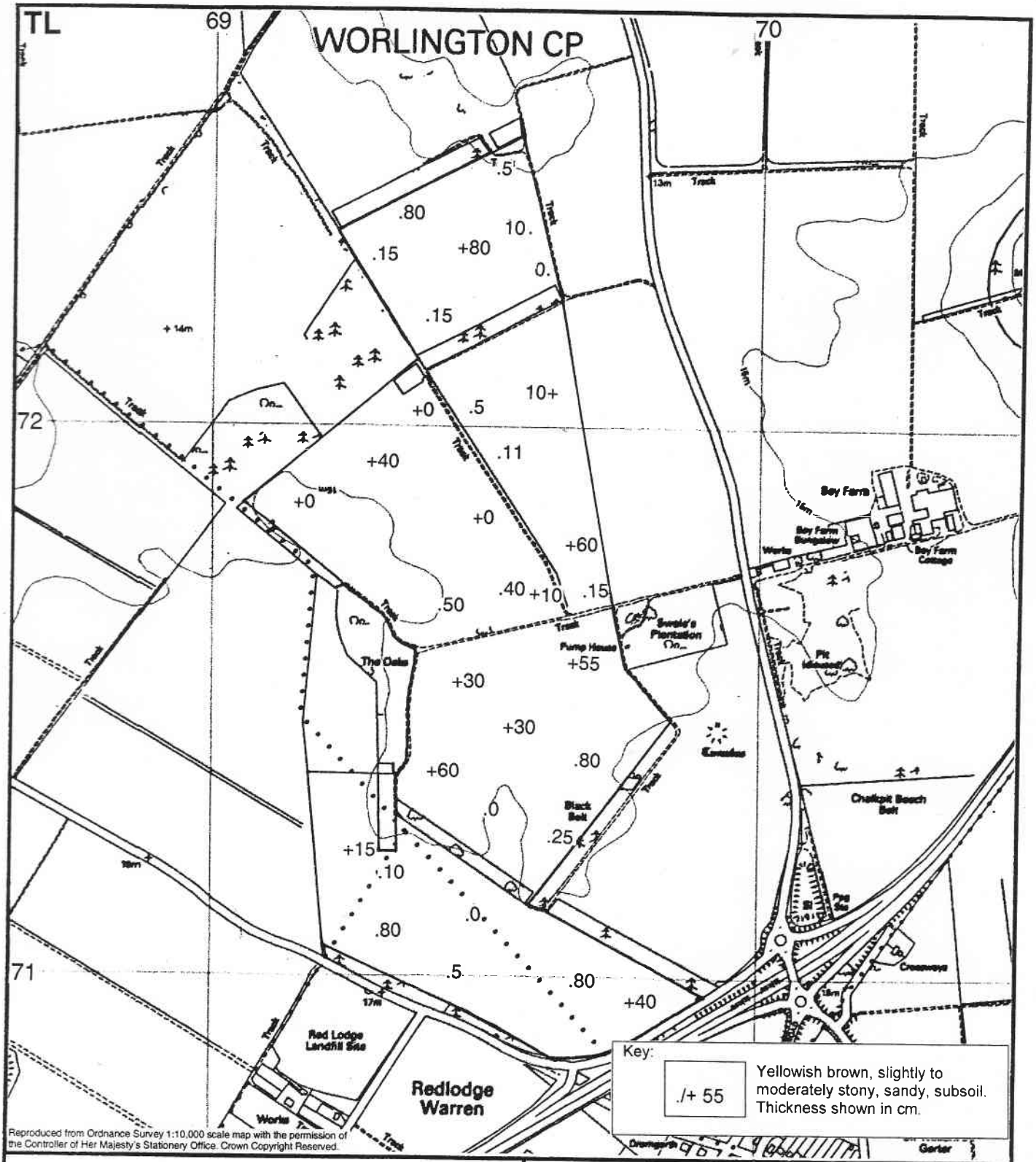
Reading Agricultural Consultants
Races Farm, Aston Street, Aston Tirrold, Didcot, Oxon.
OX11 9DJ Tel: (01235) 851515 Fax: (01235) 851511



Plan RAC 3: Topsoil Types

Site P48
Bay Farm
Worlington
Suffolk

Reading Agricultural Consultants
Races Farm, Aston Street, Aston Tirrold, Didcot, Oxon.
OX11 9DJ Tel: (01235) 851515 Fax: (01235) 851511



Plan RAC 4: Subsoil Types

REGISTERED IN ENGLAND 869057 VAT REG NO 213 5882 76

DICKERSON Ltd.

Site P48
Bay Farm
Worlington
Suffolk

Reading Agricultural Consultants

Races Farm, Aston Street, Aston Tirrold, Didcot, Oxon. OX11 9DJ Tel: (01235) 851515 Fax: (01235) 851511

Annex B Ministry of Agriculture, Fisheries and Food Survey Proof of Evidence

28/91

PROOF OF EVIDENCE

AGRICULTURAL LAND CLASSIFICATION

LAND AT KENNETT CAMBRIDGESHIRE

TOWN AND COUNTRY PLANNING ACT 1990

LAND AT KENNETT, CAMBRIDGESHIRE

PUBLIC INQUIRY

PROOF OF EVIDENCE

BY

SARAH ESCOTT

ON BEHALF OF

MINISTRY OF AGRICULTURE, FISHERIES AND FOOD

ADAS
RESOURCE PLANNING TEAM
ADAS STATUTORY CENTRE, HUNTINGDON

NOVEMBER 1992

CONTENTS

1.0 INTRODUCTION

1.1 My name is Sarah Escott. I am a consultant for the Huntingdon Statutory Centre of ADAS. I have a BSc (Honours) Degree in Ecological Science awarded by the University of Edinburgh. I have been employed by the Ministry of Agriculture, and latterly ADAS, for eight years working in the Cambridge area. Throughout this time a large proportion of my work has been concerned with the classification of agricultural land for land use planning purposes.

2.0 PLANNING CONSULTATION

2.1 I am attending this inquiry at the request of the Ministry of Agriculture, Fisheries and Food to provide information on agricultural land quality at Kennett, Cambridgeshire. The results of this survey are contained in this proof (sections 3.0 to 7.0) with a summary in section 8.0.

3.0 THE MAFF AGRICULTURAL LAND CLASSIFICATION SYSTEM

3.1 The MAFF Agricultural Land Classification (ALC) system assesses land quality based on its long term physical potential. Land is assigned to an ALC grade according to the degree to which its inherent physical characteristics impose long term limitations on agricultural use.

3.2 The main physical factors which are taken into account in assessing ALC grade are climate, site and soil. These may act singly, or in combination to result in varying degrees of constraint on agricultural production. The ALC grade is determined by the most limiting factor present.

3.3 Five main grades of land are recognised ranging from grade 1 land of excellent quality to grade 5 land of very poor quality. Other issues, such as the location of farms, the standard of fixed equipment and the accessibility of land do not affect grading although they may influence land use decisions. The definitions of the five ALC grades are included in Annex 1.

4.0 BACKGROUND TO THE SITE

4.1 This 188.9 hectare site was inspected during May and June 1991. Recently in November 1992 an additional area to the north west was surveyed following a

revision of the application area. A total of 194 soil inspections were made on site supplemented by information from eight soil inspection pits. At the time of the survey the land was under arable cropping which included cereals, sugar beet, potatoes and daffodils.

4.2 On the provisional 1 inch to 1 mile published ALC map sheet 135 (MAFF 1971), the area is shown as mainly grade 3, with a narrow strip of grade 4 along the northern boundary. Since this map is of a reconnaissance nature designed primarily for strategic planning purposes, the current survey was undertaken to provide more detailed information on land quality for the site.

5.0 PHYSICAL FACTORS AFFECTING LAND QUALITY

Climate

5.1 Site specific climate data has been obtained by interpolating information contained in the 5 km grid dataset produced by the Meteorological Office (Met Office, 1989).

5.2 This shows that the Kennett area has an average annual rainfall of approximately 585 mm (23.8"), which is low by national standards. Soils are at field capacity for a relatively short period of about 106 days.

5.3. The accumulated temperature for this area is approximately 1425° Celsius. This parameter gives an indication of the cumulative build up of warmth and in conjunction with rainfall influences the development of soil moisture deficits (SMD)* and hence susceptibility to drought. The soil moisture deficits for wheat and potatoes are calculated as 117 mm and 112 mm respectively.

5.4. These climatic characteristics do not impose any climatic limitations on the ALC grading of the site.

---

* SMD represents balance between rainfall and evapotranspiration which occurs during the growing season. For ALC purposes the SMD's developing under a winter wheat and maincrop potato cover are considered. These "reference" crops have been selected because they are widely grown and in terms of their susceptibility to drought, are representative of a wide range of crops.

Altitude and Relief

5.5. The land forms a gently undulating plateau area between the A11, A45 and B1085 roads. Within the plateau (altitude range 26-28m AOD) a shallow valley feature runs northwards from Halfmoon Plantation. Gradient and altitude do not constitute limitations to the ALC grade.

6.0 GEOLOGY AND SOILS

6.1. The published 1:50,000 scale drift edition geology map sheets 188 and 189 show the survey area to comprise mainly Middle Chalk with fourth terrace gravel deposits along the northern edge of the site. In addition a small area of boulder clay is shown to the west of Dane Hill and an area of Head deposits is shown towards the south western corner of the site.

6.2 The Soil Survey of England and Wales have mapped the area on two occasions firstly, in 1971, at a scale of 1:63,360 and secondly, in 1983, at a reconnaissance scale of 1:250,000. These maps broadly agree and indicate that the soils on site are likely to be derived mainly from Chalk deposits. The current detailed survey identified four main soil types.

6.3. To the south east chalk rubble derived soils predominate. Profiles are freely draining (Wetness Class I) and droughty. Typical profiles comprise deep, very slightly or occasionally slightly stony medium sandy loam topsoils which overlie rootable chalky subsoils. At depth the subsoils are commonly impenetrable to roots.

6.4. To the south west and through the centre of the site deeper chalk derived soils predominate. Consequently the soils are less droughty. Typical profiles comprise very slightly stony medium sandy loam topsoils over similar upper subsoils which merge into rootable chalk material at depth.

6.5. Adjacent to the northern edge of the site and south of Dane Hill lighter textured and/or stonier non chalky soils outcrop. They are freely draining and typically significantly droughty. In general profiles comprise very slightly to moderately stony medium sandy loam topsoils over sandy subsoils. Heavier textured subsoil lenses (ie. sandy clays or sandy clay loams) may be encountered at depth.

6.6. The fourth soil type identified is better bodied, less droughty and typically less stony than the soils described in paragraph 6.5. These profiles occupy small areas, typically in the western half of the site, and generally comprise very slightly to slightly stony medium sandy loam topsoils over similar subsoils. Similar to the soils described in paragraph 6.5 heavier textured lower subsoil lenses may be encountered at depth.

7.0 AGRICULTURAL LAND CLASSIFICATION (refer to ALC map, C39)

7.1. The definition of the Agricultural Land Classification (ALC) grades are included in Annex 1. The site is mainly graded 2 and 3a, with smaller areas of 3b and Non Agricultural land. A full description of the ALC grades mapped on site is provided in paragraphs 7.3 to 7.9.

Irrigation

7.2 The entire site, except a small area to the south of the A45 road, is irrigated. The irrigation facility enhances the potential of the agricultural land (on site) for crop production. Consequently the ALC grades mapped take into account the reduction in drought risk afforded by the irrigation.

Grade 2

7.3 To the south west and through the centre of the site the land is shown as grade 2. The majority of this land is associated with the soils described in paragraph 6.4. A few borings of the soil described in paragraph 6.6 are also found in this area.

7.4 The availability of irrigation water enhances the water available for crop growth in these chalk derived soils and as a result profiles are slightly droughty. Locally topsoil stone content (>2cm size) may also limit the land to grade 2. Slight droughtiness (and occasionally topsoil stone content) is the main limitation to the ALC grade.

Subgrade 3a

Two main situations occur.

7.5 The area towards the south east of the site is mainly associated with the shallower chalk derived soils described in paragraph 6.3. Regular irrigation enhances the water

water holding capacity of these drought prone soils and as a result the land has been graded 3a.

7.6 The remaining area of land graded 3a, located in the north west, is mainly associated with the less stony variant of the soil described in paragraph 6.5. This area is also associated with the slightly stonier variant of the soils described in paragraph 6.6. The reduced drought risk afforded by irrigation within the area results in the land being mapped as grade 3a (good quality agricultural land). Moderate droughtiness restrictions are the chief limitation to the ALC grade. Locally topsoil stone (>2cm) may also prevent this land from being a higher grade.

7.7 Within the subgrade 3a areas less droughty individual borings of grade 2 were encountered. However, these borings are isolated and sporadically located, therefore it is not possible to delineate them separately at this survey scale.

Subgrade 3b

7.8 The three small areas of subgrade 3b land are associated with the stony, light textured soils described in paragraph 6.5. In these areas the topsoil stone content (<2cm) is the main limitation to the ALC grade. A relatively high topsoil stone content can increase production costs by causing extra wear and tear to farm implements and tyres. Stones may also impair crop establishment and reduce the nutrient capacity of the soil. Consequently these areas have been graded 3b.

Non Agricultural

7.9 Woodland has been mapped as Non Agricultural land.

November 1992

S Escott
Resource Planning Team
ADAS Statutory Centre, Huntingdon

8.0 SUMMARY: AGRICULTURAL LAND CLASSIFICATION

Land at Kennett (refer to Agricultural Land Classification Map, C39)

8.1 The site is predominantly graded 2 and 3a, with smaller areas of 3b and Non Agricultural land. A breakdown of land quality in hectares and percentages is provided below.

	AGRICULTURAL LAND CLASSIFICATION	
Grade	ha	%
2	70.0	37
3a	100.0	53
3b	11.4	6
Non Agricultural	7.5	4
TOTAL	188.9	100

8.2 Details of the MAFF agricultural land classification system, the methodology used and the chief limitations to agricultural land quality are provided in sections 3.0 to 7.0 of this proof.

REFERENCES

GEOLOGICAL SURVEY OF ENGLAND AND WALES (1981 & 1982). Solid and Drift geology map sheets 188 and 189, Scale 1:50,000.

MAFF (1988). Agricultural Land Classification of England and Wales. Revised Guidelines and Criteria for Grading the quality of Agricultural Land. Alnwick.

METEOROLOGICAL OFFICE. Data extracted from the published agroclimatic dataset.

SOIL SURVEY OF ENGLAND AND WALES (1971). Soils of Cambridge and Ely, Sheet 135, Scale 1:63,360.

SOIL SURVEY OF ENGLAND AND WALES (1983). Map entitled 'Soils of Eastern England'. Sheet 4, 1:250,000 Scale.

ANNEX 1

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 include 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 crops. The level of yields 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 winter range of crops or high yields of grass which can be grazed or harvested over most of the year.

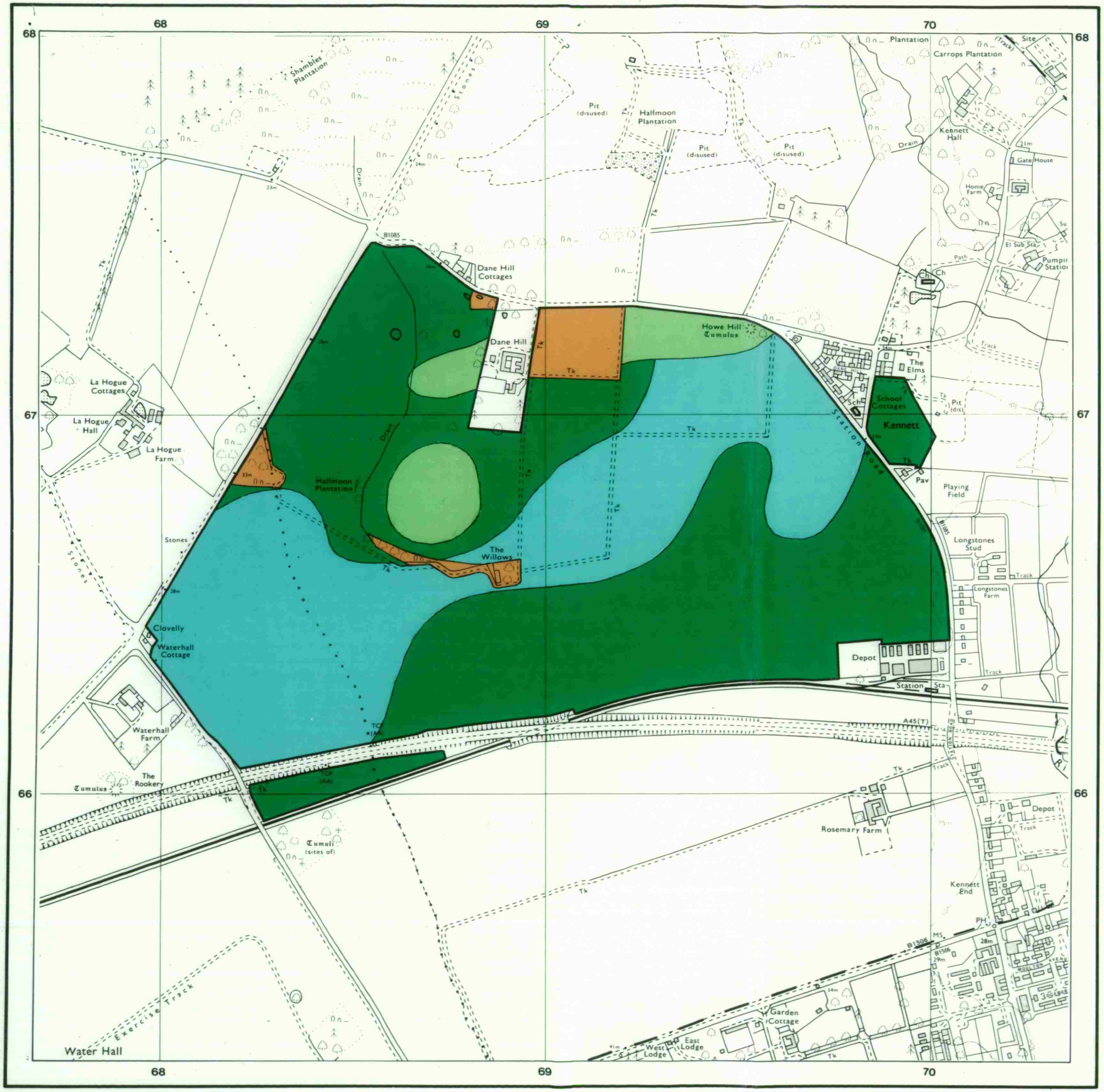
Grade 4 - poor quality agricultural land

Land with severe limitations which significantly restrict the range of crops and/or levels of yields. It is mainly suited to grass with occasional arable crops (eg. cereals and forage crops) the yield of which are variable. In most 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 agricultural land

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

Agricultural Land Classification
Kennett, Cambs



AGRICULTURAL LAND

Agricultural Grades		Agricultural Land Quality
Grade 1	*	Very high
Grade 2		
Grade 3 a		
Grade 3 b		
Grade 4	*	
Grade 5	*	Very low

Disturbed	*	Agricultural Buildings	*
		Unsurveyed	*

NON AGRICULTURAL LAND

Land predominantly in urban use	*
Other land primarily in non-agricultural use	

* Land in this category does not occur on this map

SOURCE MAPS Base maps taken from the O.S. **1:10000**
Sheets **TL66NW TL76NE**

This map is accurate only at the scale shown.
Any enlargement could be misleading

Scale 1:10 000

100 0 100 200 300 400 500 600 700 800 900 1000
Metres

Drawn by the Cartographic Unit,
Farm & Countryside Service
Cambridge. Ref. H 28 91

MAFF Ministry of Agriculture Fisheries and Food

Kennett 28/91

TL 66 NE & 76 NW

PIT6

PIT1

PIT3

PIT2

PIT4

PIT5

Cambs 09/92

AGRICULTURAL LAND CLASSIFICATION INCORPORATING SOIL PHYSICAL CHARACTERISTICS, FOR PROPOSED BORROW PITS AT KENNET

1. BACKGROUND

1.1 The site comprises two separate areas of 34 hectares in total and is the subject of an application for proposed borrow pits adjacent to the A11 road at Kennet, Cambs.

1.2 MAFF surveyed the site in February 1992 at an auger boring density of approximately 1 boring per hectare. Soils pits were also dug in order to provide supplementary information about subsoil conditions.

2. SITE PHYSICAL CHARACTERISTICS

2.1 Climate

Climate data for the site was obtained from the published agricultural climatic dataset (Met. Office, 1989). This indicates that for the site's mid range altitude of 25 m AOD the annual average rainfall is 583 mm (30"). This data also indicates that the field capacity days are 105 and moisture deficits are 117 mm for wheat and 113 mm for potatoes. These climatic characteristics do not impose any climatic limitation on the ALC grading of the survey site.

2.2 Altitude and Relief

The northern and southern sites both comprise gently undulating land with average altitudes of 23 m AOD and 27 m AOD respectively. Gradient and altitude do not constitute limitations to the ALC grading of the survey site.

3.0 AGRICULTURAL LAND CLASSIFICATION

3.1 The definitions of the Agricultural Land Classification grades are included in Appendix 2.

3.2 The table below shows the breakdown of the ALC grades for this site.

AGRICULTURAL LAND CLASSIFICATION

	Grade	ha	%
Northern Site	3a	7.8	23
	3b	2.1	6
	Non Ag.	0.1	-
Southern Site	2	22.9	67
	3a	0.2	1
	Non Ag.	0.9	3
Site Total		34	100

3.3 Irrigation

The southern site is irrigated which significantly enhances the potential of soils on this site and as a result the ALC grades assigned to this area take into account the reduction in drought risk.

3.4 Grade 2

The majority of the southern site has been graded 2. The majority of this land is associated with the soils described in paragraph 4.2.2. The availability of irrigation water enhances the water holding capacity of these soils and as a result they are only slightly droughty. Locally topsoil stone content (> 2 cm) may also limit this land to ALC grade 2. Slight droughtiness and occasionally topsoil stone content are therefore the overriding limitations to the ALC grade*.

* More or less droughty individual borings within this area of grade 2 occur randomly and are not possible to delineate separately at this scale.

3.5 Subgrade 3a

The majority of the northern site has been mapped as subgrade 3a and is associated with the better bodied and often less stony variant of the soils described in paragraph 4.2.1. The coarse soil textures combined with the profile stone content, result in these soils having a reduced water holding capacity. Droughtiness is therefore the overriding limitation to the grade.

3.6 Subgrade 3b

The remaining area in the north western corner of the northern site has been graded 3b and is associated with the lighter textured variant of the soils described in paragraph 4.2.1. These soils are significantly droughty and therefore droughtiness is the overriding limitation to the grade.

4.0 SOIL PHYSICAL CHARACTERISTICS

4.1 Geology

The published 1:50,000 drift edition geology map sheet 188 (Geological Survey of England and Wales 1981) shows the northern site to mainly comprise third terrace deposits with middle chalk outcropping in the south eastern corner. This map also shows the southern site to comprise mainly middle chalk.

4.2 Soils

During this survey 2 main soil types were identified.

4.2.1 Soil Mapping Unit 1 (refer Appendix 1)

These soils occur over most of the northern site and as isolated borings over the southern site. Profiles typically comprise very slightly stony medium sandy loam topsoils over similar or stonier upper-subsoils becoming loamy medium sand at depth. A lighter textured variant of these soils occurs in the north western corner of the northern site and typically comprises sandy loam topsoils with very

slightly to slightly loamy medium sand subsoils becoming medium sand at depth. In both these variants horizons of heavier material may be encountered at depth.

4.2.2 Soil Mapping Unit 2 (refer Appendix 1)

These chalk rubble derived soils occur over the majority of the southern site and at isolated borings over the northern site. They comprise very slightly stony medium sandy loam topsoils over similar upper subsoils becoming rootable chalky material which is often impenetrable at depth.

ADAS
Resource Planning Team
Cambridge
April 1992

APPENDIX 1

SOIL DESCRIPTIONS

Mapping Unit 1

Topsoil	Texture	:	medium sandy loam
	Colour	:	10YR 4/3
	Stone	:	typically 1-5% flints
	Roots	:	many fine and very fine roots
	Depth	:	35 cm
Upper Subsoil	Texture	:	medium sandy loam or loamy medium sand.
	Colour	:	10YR 4/6
	Stone	:	typically 5-10% flints
	Roots	:	common fine and very fine
	Structure	:	moderately developed medium subangular blocky.
	Consistence	:	friable
	Depth	:	45/50 cm
Lower Subsoil	Texture	:	loamy medium sand, occasionally medium sandy loam.
	Colour	:	10YR 6/6
	Stone	:	typically 5% flints
	Roots	:	common fine and very fine becoming few 70 cm +.
	Structure	:	weakly developed medium subangular blocky.
	Consistence	:	very friable
	Depth	:	120 cm

Mapping Unit 2

Topsoil	Texture	:	medium sandy loam
	Colour	:	10YR 3/4
	Stone	:	1-5% flints
	Roots	:	common fine and very fine
	Depth	:	40 cm
Upper Subsoil	Texture	:	medium sandy loam
	Colour	:	10YR 5/4
	Stone	:	5% chalk stones
	Roots	:	common fine and very fine
	Depth	:	55 cm
Lower Subsoil	Texture	:	hard chalky sand mix materials with soil 'funnels' (medium sandy loam)
	Colour	:	10YR 7/3 with 10 YR 5/6 soil 'funnels'
	Stone	:	15% white chalk
	Structure	:	too hard to assess
	Roots	:	few roots to 65 cm
	Depth	:	80 cm +

Additional Information

$CaCo_3$: All horizons are calcareous or very calcareous. Chalky sand mix material comprises weathered chalky material, chalky rubble within a cemented matrix typically textures to medium sandy loam or clay loam.

Appendix 2

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 include 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 crops. The level of yields 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

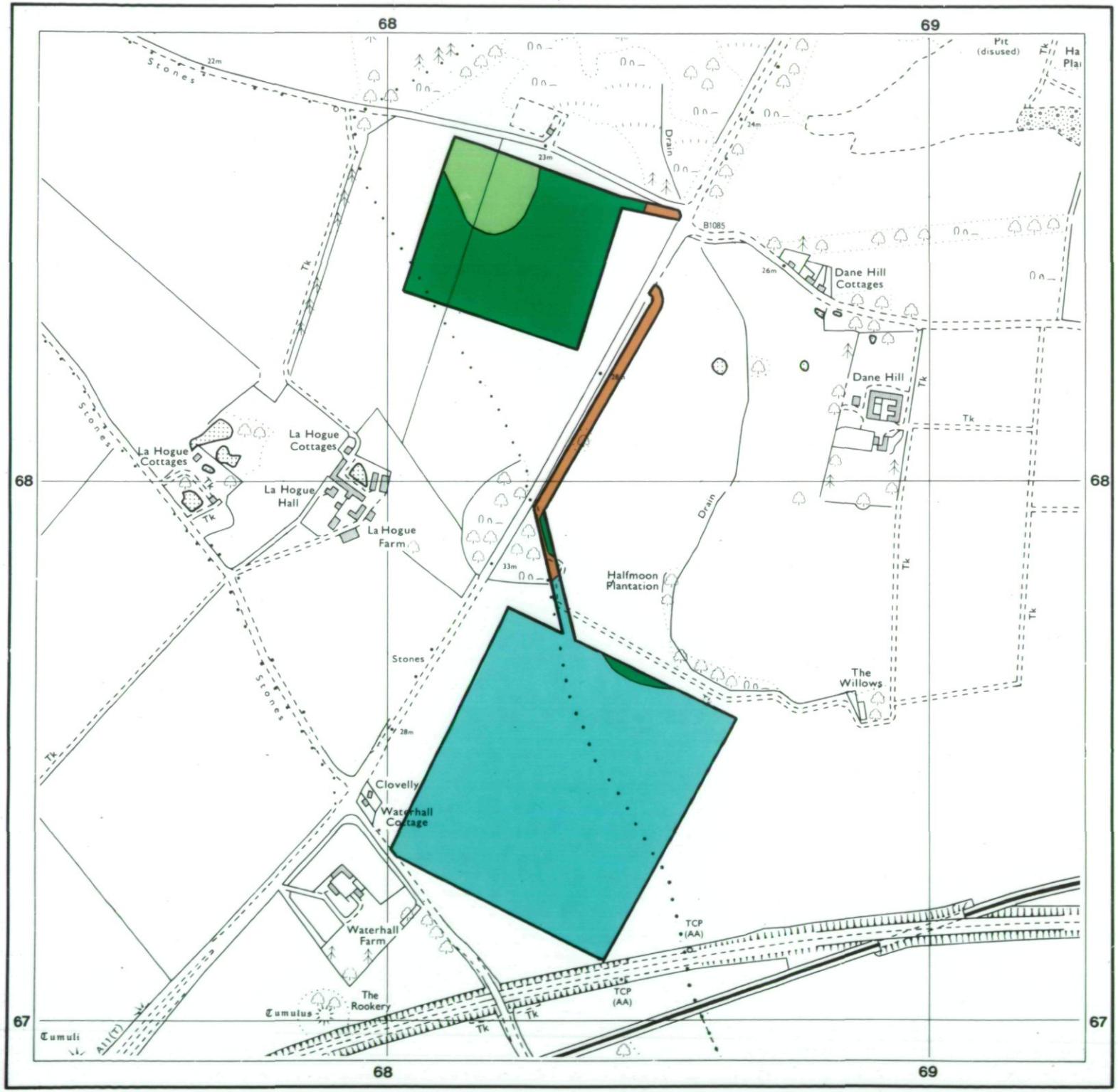
Land capable of producing moderate yields of a narrow range of crops, principally cereals and grass or lower yields of winter range of crops or high yields of grass which can be grazed or harvested over most of the year.

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 (eg cereal 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 agricultural land

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



Agricultural Land Classification

Proposed Borrow Pits for A11 at Kennett, Cambs

AGRICULTURAL LAND

Agricultural Grades (Irrigated)		Agricultural Land Quality
Grade 1	*	Very high
Grade 2		
Grade 3	a	
	b	
Grade 4	*	
Grade 5	*	Very low

Disturbed	*	Agricultural Buildings	*
		Unsurveyed	*

NON AGRICULTURAL LAND

Land predominantly in urban use	*
Other land primarily in non-agricultural use	

* Land in this category does not occur on this map

SOURCE MAPS Base maps taken from the O.S. **1:10000**
Sheet no. TL 66 NE

This map is accurate only at the scale shown.
Any enlargement could be misleading

Scale 1:10 000

100 0 100 200 300 400 500
Metres

Drawn by the Cartographic Unit,
Farm & Countryside Service
Cambridge. Ref 1 9 92

MAFF Ministry of Agriculture Fisheries and Food

A11 KENNETT

1992

TL66NE

Stones

22m

Drain

23m

24m

1

2 3 4 5 6

7 8 9

10 11

Dane Hill Cottages

Dane Hill

28m

La Hogue Cottages

La Hogue Cottages

La Hogue Hall

La Hogue Farm

Tk

Tk

Tk

33m

Halfmoon Plantation

12

13 14

15 16 17 18

19 20 21 22 23 24

25 26 27 28 29

30 31 32 33

34 35

The Willows

Stones

28m

Clovelly

Waterhall Cottage

Waterhall Farm

TCP (AA)

TCP (AA)

Tumulus

The Rookery

Tk

Tk

Hilly Plantation

Tumuli (sites of)

Annex C Natural England Correspondence on ALC Methodology

Gmail **Daniel Baird** [redacted]

RE: ALC Grading and Irrigation.

1 message

[redacted]@naturalengland.org.uk> 18 June 2019 at 16:17
To: [redacted]m" [redacted]> [redacted]
[redacted]

HI Dan, good to hear from you. Irrigation was removed from the ALC guidelines in 1997. This is reflected in the 1997 version of PPG7, which has irrigation classed under the 'other consideration' heading – see Annex B, paragraph B11 (See below). The approach taken in the light of this was that irrigation should not be used to upgrade land. Irrigation can have a beneficial effect but it would be considered as another factor for planning authorities to take into account, alongside other non-land quality factors such as location, farm structure etc.

As a consequence the grading you referred to would need to be reviewed without irrigation. This would be an acceptable change in grading.

Hope that helps

[redacted]

B11 *Irrigation*—When irrigation is practised and water supplies are adequate and reliable, the productive capacity of agricultural land and its importance relative to non-irrigated land of the same grade will often be significantly increased.

From: [redacted]m [mailto[redacted]
Sent: 06 June 2019 16:00
To [redacted]
Subject: ALC Grading and Irrigation.

Hi [redacted]

I am looking at an area of land to the NE of Newmarket, Cambridge Job No. 028/91, with an overlapping job no 009/92

[redacted]

The ALC grading appears to have been given a one grade lowering of drought limitation thanks to the availability of irrigation. Obviously a lot has changed in the ¼ century regarding the farmers security of supply of water to abstract, and the direction of travel does not seem likely to improve.

Do NE have a policy on the current robustness of such soil droughtiness limitations or is it considered on a case by case basis.

Kind regards

Daniel

Daniel Baird M.I. Soil Sci.

Daniel Baird Soil Consultancy Ltd

[redacted]

Annex D Farmers Questionnaire

Address

Sunnica-20200716-FarmersQuestionnaire-2222916 20 July 2020

Dear Name

Sunnica Cable Route - Farmers questionnaire.

My name is Daniel Baird, I am an Agricultural Planning Consultant working on the proposed Sunnica Solar Farm development. WSP and I are contacting you regarding agricultural land you manage that could be affected by a cable route for the proposed solar farm.

As part of the Sunnica planning process and Environmental Impact Assessment (EIA) I am looking at the potential impacts on farm businesses, a 'Farming Circumstances' assessment.

I am carrying out this work on behalf of the applicant, Sunnica, but as with other aspects of the EIA work this is an objective appraisal rather than an attempt to promote or challenge the planning application.

For agricultural land that the cable route would cross, I want to build a picture of each farm business, how the directly affected land fits into the rest of the farm and what concerns the farmer may have regarding the cable route. This is in broad general terms rather than any detailed investigation of farm accounts. For instance, if a parcel of land is owned by a trust, and leased to a farm business for which you are a beneficiary of both, owner occupied will suffice.

The sort of information I would like is the area of land your farm occupies and the tenure of that land, farm enterprises, diversification, and environmental constraints / schemes. Then for the land directly affected, access constraints, use by different farm enterprises, nuisances etc. I also want to draw out any specific interactions, for instance a farm may lose the use of an arable field that does not directly impact its primary enterprise of a dairy herd, but as a result of the loss of land for disposing of manure, has to cut the size of the herd.

I am also interested in indirect effects on land outside the proposed cable route, for instance any severance of access, drainage and/or water supplies for farmland while cable laying is taking place.

The results of the assessment will be in a publicly available document. We will not be directly identifying farms and farmers, and may collate groups of farms together where the issues faced are similar. Maps will be included however and many local residents will already know who manages the land concerned.

Please see attached a questionnaire and a plans showing land you occupy along the proposed solar farm cable route. Please also add any other information or concerns you feel may be relevant but are not covered by the questionnaire.

Please could any response you make be made through WSP using the email address sunnicalandreferencing@wsp.com or using the enclosed freepost envelope. For your responses to be considered in our assessment please could the questionnaire be returned for **Friday 31 July 2020**.

[redacted] to speak to me directly regarding this questionnaire, you can call me on [redacted]

Kind Regards,

[redacted]

Daniel Baird
Agricultural Planning Consultant

Sunnica Cable Route – Farmers Questionnaire **Sunnica Energy Farm**

Please see Notes for Completion at the end for help in completing the questionnaire
Please use BLOCK CAPITALS to complete the questionnaire. There is additional space at the end if needed.

Land ownership parcel number shown on plan: 1141
Your Reference Number: 2222916
Summary description of interest: Land on the North side of Little Fen Drove, Burwell

For office use only

1. Farm Business Name

2. Area of all land occupied and tenure of occupation (owner occupied, Full Agricultural Tenancy, Farm Business tenancy, grazing licence, contract farming, share farming)

3. Tenure of fields crossed by the cable route.

4. Main centre of operation and distance to affected fields

Please see Notes for Completion at the end for help in completing the questionnaire
Please use BLOCK CAPITALS to complete the questionnaire. There is additional space at the end if needed.

5. Farm enterprises (including provision of contractor services to other farm units)

6. Cropping / stocking (for all farm enterprises and specific to land on the cable route)

7. Diversification including shoots, holiday lets, equestrian etc. Please note if land on the cable route is directly used for the diversified enterprise, for instance rides for a livery business.

8. Agri-environmental schemes

Please see Notes for Completion at the end for help in completing the questionnaire
Please use BLOCK CAPITALS to complete the questionnaire. There is additional space at the end if needed.

---

9. Employment – please note where employees are also family members, and part time/seasonal employment, with estimated full time equivalent numbers.

---

10. Significant buildings (e.g. dairy parlours, packing sheds and grain stores, please indicate size and location)

---

11. Major machinery (eg combine harvesters, irrigators, high work rate tractors).

---

12. Water and Irrigation (Livestock troughs, current abstraction licence volumes, reservoirs, installed irrigation mains)

Please see Notes for Completion at the end for help in completing the questionnaire
Please use BLOCK CAPITALS to complete the questionnaire. There is additional space at the end if needed.

13. Drainage for site area (please annotate plan with any particular drainage issues)

Please see Notes for Completion at the end for help in completing the questionnaire
Please use BLOCK CAPITALS to complete the questionnaire. There is additional space at the end if needed.

The information is both complete and accurate to the best of my knowledge

Name (please print):.....

Tel. No: .....Date: .....

Signed: .....Email: .....

Sunnica Limited and its agents will process the information provided in your responses to this questionnaire solely for the purpose of fulfilling our statutory obligations in connection with the Sunnica Energy Farm project and in accordance with the General Data Protection Regulation and Data Protection Act 2018.

☐ We may use your email address to contacts you in future about the Sunnica Energy Farm. Please tick here if you do NOT wish us to use your email for this.

If you require any assistance completing this form, please contact a member of the WSP team on **020 3116 9101** or email on sunnicalandreferencing@wsp.com**.** Please note that completing the form does not indicate that you agree or disagree with the Sunnica Energy Farm project.

More information on the Sunnica Energy Farm is available on our website: www.sunnica.co.uk

If you have any queries regarding the proposed Sunnica Energy Farm scheme please contact Sunnica Limited on **0808 168 7925** or info@sunnica.co.uk**.**

Please return this Land Interest Questionnaire using the enclosed prepaid envelope or send your response to:

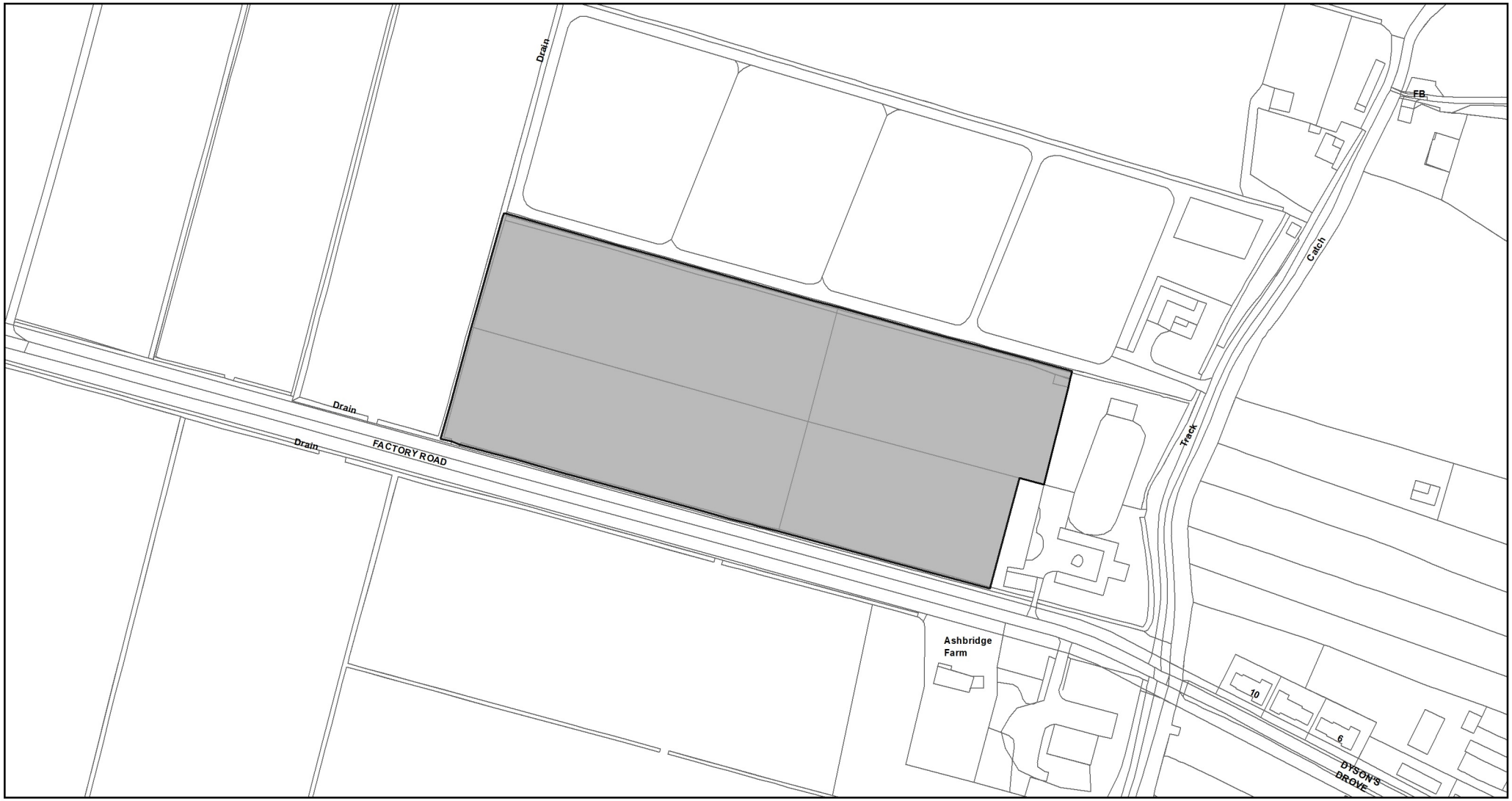
Freepost WSP or by email to sunnicalandreferencing@wsp.com

Additional information

Please see Notes for Completion at the end for help in completing the questionnaire
Please use BLOCK CAPITALS to complete the questionnaire. There is additional space at the end if needed.

This questionnaire, including any document enclosed, is intended for the addressee only. Any other person is prohibited from reading, using, disclosing or copying the information contained in it. If you have received this questionnaire in error, please return to the WSP team at Land Services – Freepost WSP

Land Ownership Parcel Number: 1141
Your Reference Number: 2222916
Summary description of interest: Land on the North side of Little Fen Drove, Burwell



Land Plan

SCALE: 1:2,500

Annex E Figures

Figure 1 Sunnica Energy Farm: Farm Business Occupancy

560000 565000 570000

275000 270000 265000

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

LEGEND

- The Order Limits
- Farm Business A
- Farm Business B
- Farm Business C
- Farm Business D
- Farm Business E
- Farm Business F

NOTE:
Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
FARMING CIRCUMSTANCES

Drawn	Checked	Approved	Date
LL	DW	NC	01/11/2021

AECOM Internal Project No.: 60589004
Scale @ A3: 1:40,000

AECOM
Unit 1 Wellbrook Court,
Girton,
Cambridge, CB3 0NA
United Kingdom
Telephone (01223) 488000
www.aecom.com

Drawing Number: FIGURE 1
Rev: 0

N

0 500 1,000 1,500 2,000m

File Name: \\eu.aecomnet.com\UKUKCBG1\Jobs\PR-334327_Sunnica_Energy_Farm\400_Technical\434_Technical Disciplines\17. GIS\Layout\ES\Appendix\Chapter 12 - Appendix 12B ALC\211101_SunnicaEnergyFarm_Figure1_FarmingCircumstances.mxd

Annex F Baird Soil Survey Data and Laboratory Reports

Sunnica Agricultural Land Classification (ALC) field data.

This annex provides the ALC field data collected by Baird Soil for most of the Sites area. Additional field data for the survey areas undertaken by MAFF and Reading Agricultural Consultants (RAC) are held by Natural England and RAC respectively.

Soils are typically light and shallow, formed over chalk or sands and gravels. In conjunction with the relatively warm and dry local climate, drought is the dominant limitation for agricultural land quality and versatility.

The table of auger borings is broken up into several areas broadly corresponding to land ownership and the sequencing of survey work. Subsequent to the survey work boundary lines for the Sites have been modified omitting some surveyed areas. Where this has occurred the numbering of sample points has not been edited so gaps are present in the numerical order.

Colours are given in Munsell notation. Soil texture abbreviations used are as follows

- MS medium sand
- LMS loamy medium sand
- LFS loamy fine sand
- MSL medium sandy loam
- FSL fine sandy loam
- ZL silt loam
- MZCL medium silty clay loam
- HZCL heavy silty clay loam
- MCL medium clay loam
- SCL sandy clay loam
- HCL heavy clay loam

Archaeological trenches open south west of Lee Farm (September 2021) illustrate the shallow nature of the soil over chalk common over much of the site. The photos below also illustrate the abrupt hollows that can be present in this chalk geology, that give rise to small areas of deeper soil profiles with a subsoil.

In addition to the examination of the soil by auger, six inspection pits were dug to examine the soil structure of subsoil, and the depth to parent material for the shallow soils. Pit descriptions for these six inspection pits are given below.

Pit 1, 23 September 2021, fine after same

TL 66600 73500, 7m AOD, level, harvested potato

Topsoil

30cm cultivated. 7.5YR3/2. LMS. 15% hard stone with gravel. Strong calcareous reaction. Smooth clear boundary to subsoil.

Subsoil

30 to 50cm. 7.5YR4/4. LMS. 15% hard stone. Weakly developed very coarse sub-angular blocky structure. Very friable. Medium packing density. Moist. No mottles. No live roots. Less than 0.1% visible pores on ped face. Abrupt smooth boundary to chalk.

Chalk

Blocks of chalk > 2cm in first 5cm with hard chalk from 55cm.

Pit 2, 23 September 2021, fine after same

TL6860071200, 11m AOD, level, barley stubble

Topsoil

30cm cultivated, 7.5YR3/2. LMS, 20% hard stone, calcareous. Smooth clear boundary to subsoil

Subsoil

30 to 40cm. 7.5YR4/4, LMS, 20% hard stone. Weakly developed medium sub-angular blocky structure. Very friable, moist. No visible macropores on ped face. Common fine fibrous roots. Abrupt smooth boundary to chalk

Chalk

Below 40cm, large hard chalk blocks make up approximately 50% of volume. No visible roots in gaps between blocks.

Pit 3, 23 September 2021, fine after same

TL 68700 71600. 15m AOD, level, seedbed. Wind erosion visible on surface

Topsoil

30cm cultivated, 7.5YR3/2, MS, 15% flint, non calcareous, very friable, clear smooth boundary to subsoil

Upper Subsoil

30 to 40 cm. 7.5YR7/3, MS, 15% flint, weakly developed medium to coarse granular, very friable, low packing density, smooth abrupt boundary to lower subsoil

Lower subsoil

From 40cm, augured to 120cm, 5YR5/8, MS, stoneless, weakly developed coarse platy structure below upper subsoil, very friable, moist, medium packing density

Drought calculation with Moisture Deficits of Wheat 118mm and Potato 114mm. Moisture Balance of Wheat -39mm, potato -60mm. Grade 4 Drought limitation.

Pit 4, 23 September 2021, fine after same

TL 69700 72300, 5m AOD, level, harvested potato

Topsoil

30cm cultivated, 10YR3/2, MSL, 15% flint, very friable, strong calcareous reaction, clear smooth boundary to chalk.

Chalk

Dug down to 50cm, hard chalk with approximately 30% flint and soil (LMS). No visible roots in soil matrix extracted, moist.

Pit 5, 24 September 2021, fine after same

TL 64000 68300, 11m, level with ridge and furrow surface. Permanent grass

Topsoil

15cm, 10YR3/2, HCL, 2% flint, weakly developed medium granular structure, friable, common fine fibrous roots, calcareous, smooth clear boundary to upper subsoil

Upper subsoil

15 to 35cm depth, 10YR4/2 with 10YR5/6 mottles, HCL, weakly developed coarse granular, friable, moist, common fine fibrous roots, smooth clear boundary to lower subsoil

Lower subsoil

From 50cm depth, 10YR5/1 with 10YR5/6 mottles, HCL, stoneless, weakly developed coarse sub-angular blocky, firm, medium packing density, 0.5% macropores, few fine fibrous roots, groundwater wetness.

Pit 6, 24 September 2021, fine after same

TL 67600 67900, 16m AOD, level, wheat stubble with remains of previous suage beet crop in topsoil

Topsoil

30cm cultivated, 7.5YR3/2, MSL, 15% stone, strong calcareous reaction, smooth clear boundary to subsoil

Subsoil

Flint and gravel, >50% impenetrable to spade. Soil matrix MSL, 7.5YR6/4

Topsoil samples for the six inspection pits were sent for laboratory analysis to confirm soil texture, organic matter and carbonate content. The analysis also covers stone content however when collecting bagged samples, the assessment of stone content is highly sensitive to the inclusion or omission of large stones, and the omission of such stones results in an under recording of the stone presence observed in the field.

ANALYTICAL REPORT

Report Number	**71781-21**	**P723**	**DANIEL BAIRD SOIL**
Date Received	**11-OCT-2021**		**CONSULTANCY LTD**
Date Reported	**21-OCT-2021**		**14 STEPSTAIRS LANE**
Project	**SOIL**		**CIRENCESTER**
Reference	**SUNNICA**		**GL7 1LA**
Order Number			

Laboratory Reference		**SOIL530586**	**SOIL530587**	**SOIL530588**	**SOIL530589**	**SOIL530590**					
Sample Reference		**SUNNICA PIT 1**	**SUNNICA PIT 2**	**SUNNICA PIT 4**	**SUNNICA PIT 5**	**SUNNICA PIT 6**					
Determinand	**Unit**	**SOIL**	**SOIL**	**SOIL**	**SOIL**	**SOIL**					
Coarse Sand 2.00-0.63mm	% w/w	3	3	8	1	6					
Medium Sand 0.63-0.212mm	% w/w	48	44	40	12	34					
Fine Sand 0.212-0.063mm	% w/w	32	31	23	15	25					
Silt 0.063-0.002mm	% w/w	7	12	18	39	20					
Clay <0.002mm	% w/w	10	10	11	33	15					
Neutralising Value as CaCO3 eq.	% w/w	8.8	16.0	33.7	39.5	24.4					
Neutralising Value as CaO eq.	% w/w	4.9	9.0	18.9	22.2	13.7					
Stones % >2.0mm	%	3.0	6.6	3.9	0.4	9.1					
Organic Carbon by DUMAS	%	0.9	0.6	1.0	3.4	0.9					
Organic Matter [calculation]	%	1.6	1.1	1.7	5.9	1.6					
Textural Class **		LmS	mSL	mSL	HCL	mSL					

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.

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

Reported by

Myles Nicholson

Natural Resource Management, a trading division of Cawood Scientific Ltd.
Coopers Bridge, Braziers Lane, Bracknell, Berkshire, RG42 6NS
Tel: 01344 886338
Fax: 01344 890972
email: enquiries@nrm.uk.com

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	**71831-21**	**P723**	**DANIEL BAIRD SOIL**
Date Received	**12-OCT-2021**		**CONSULTANCY LTD**
Date Reported	**21-OCT-2021**		**14 STEPSTAIRS LANE**
Project	**SOIL**		**CIRENCESTER**
Reference	**SUNNICA**		**GL7 1LA**
Order Number			

Laboratory Reference		**SOIL530664**
Sample Reference		**PIT 3 TOPSOIL**
Determinand	**Unit**	**SOIL**
Coarse Sand 2.00-0.63mm	% w/w	4
Medium Sand 0.63-0.212mm	% w/w	59
Fine Sand 0.212-0.063mm	% w/w	25
Silt 0.063-0.002mm	% w/w	6
Clay <0.002mm	% w/w	6
Neutralising Value as CaCO3 eq.	% w/w	<1
Neutralising Value as CaO eq.	% w/w	<1
Stones % >2.0mm	%	16.9
Organic Carbon by DUMAS	%	0.7
Organic Matter [calculation]	%	1.2
Textural Class **		mS/LmS

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.

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

Reported by

Myles Nicholson

Natural Resource Management, a trading division of Cawood Scientific Ltd.
Coopers Bridge, Braziers Lane, Bracknell, Berkshire, RG42 6NS
Tel: 01344 886338
Fax: 01344 890972
email: enquiries@nrm.uk.com

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.

Agricultural Land Classification (ALC) Survey – Sunnica, Lee Farm

03/10/2019 – Overcast

04/10/2019 - Overcast, poor GPS reception

09/10/2019 - Fair after rain

10/10/2019 – Fine

11/10/2019 - Fair after overnight rain

03/07/2020 - Fair - after outdoor pigs removed

Label for soil sample data locations plotted: LF

Table 1 - Soil data for sample points in Lee Farm

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
1	TL6650074800	-6	0		onion	1	30	10YR2/1	MCL		20	flint	15%>2cm				-45	-41	I	Calc	3b	D	
						2	40	10YR6/1	MCL	M	80	chalk				N							stop for chalk
2	TL6660074800	-8	0		onion	1	30	10YR3/2	MSL		15	hard stone	10%>2cm				-47	-43	I		3b	D	stop for chalk
3	TL6670074800	-9	0		onion	1	30	10YR3/2	MSL		15	hard stone	10%>2cm				-47	-43	I		3b	D	stop for chalk
4	TL6680074800	-6	0			1	30	10YR3/2	MSL		10	hard stone					-28	-24	I		3b	D	
						2	50	10YR4/4	MSL	M	10	hard stone				N							stop for stone
5	TL6650074700	-3	0		onion	1	30	10YR2/1	MCL		20	flint	15%>2cm				-45	-41	I	Calc	3b	D	
						2	40	10YR6/1	MCL	M	80	chalk				N							stop for chalk
6	TL6660074700	-8	0		onion	1	30	10YR3/2	MSL		10	hard stone					-11	-21	I		3a	D	
						2	60	10YR4/4	MSL	M	10	hard stone				n							
						3	70	10YR5/1	MSL	M	20	hard stone		10YR5/4									stop for stone
7	TL6670074700	-3	0		onion	1	30	10YR3/2	MSL		10	hard stone					-28	-24	I		3b	D	
						2	50	10YR4/4	MSL	M	10	hard atone				N							stop for chalk
8	TL6680074700	-2	0		onion	1	30	10YR3/2	MSL		10	hard stone					-28	-24	I		3b	D	
						2	50	10YR4/4	MSL	M	10	hard atone				N							stop for chalk
11	TL6650074600	-4	0		onion	1	30	10YR2/1	MCL		20	flint	15%>2cm				-45	-41	I	Calc	3b	D	
						2	40	10YR6/1	MCL	M	80	chalk				N							stop for chalk
12	TL6660074600	-8	0		onion	1	30	10YR3/2	MSL		20	gravel					-20	-29	I		3a	D	3b borderline

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						2	70	7.5YR4/4	MSL	M	20	gravel				N							
13	TL6670074600	-1	0		onion	1	30	10YR3/2	MSL		15	hard stone	10%>2cm				-47	-43	I		3b	D	
14	TL6680074600	-2	0		onion	1	30	10YR3/2	MSL		10	hard stone					-24	-27	I		3b	D	
						2	40	10YR4/4	MSL	M	10	hard stone											
						3	60	10YR7/2	MCL	M	80	chalk				N							stop for chalk
18	TL6650074600	-3	0		potato stubble	1	30	7.5YR3/2	MCL		15	flint	10%>2cm				-32	-28	I	Calc	3b	D	
						2	40	10YR6/1	MCL	M	15	chalk and flint				N							stop for chalk
19	TL6660074500	-9	0		potato	1	30	10YR3/2	MSL		10	hard stone					-8	-25			3a	D	
						2	80	10YR4/4	MSL	M	10	hard stone				N							
						3	90	7.5YR5/1	MSL	M	20	chalk				N							stop for stone
20	TL6670074500	-1	0		pigs	1	30	7.5YR3/2	MSL		10	hard stone					-23	-35	I		3b	D	
						2	60	7.5YR4/4	LMS	M	10	hard stone				N							
						3	70	7.5YR6/2	MSL	M	10	hard stone				N							stop for stone
24	TL6640074500	-7	0		potato	1	35	7.5YR3/2	MS		5	gravel									3b	topsoil	
						2	70	Black	OC	P	0					Y							
						3	80+	Black	FP	M	0					N							
25	TL6650074400	-2	0		potato	1	30	7.5YR3/2	MCL		20	flint	10%>2cm				-34	-30	I	Calc	3b	D	
						2	40	10YR6/1	MCL	M	20	chalk and flint				N							stop for chalk
26	TL6660074400	-8	0			1	30	7.5YR3/2	MSL		15	hard stone	10%>2				-39	-43	I		3b	D	
						2	70	7.5YR5/4	LMS	M	10	hard stone				N							stop for chalk
27	TL6670074400	2	0			1	40		LMS		10	hard stone					-59	-55	I		4	D	stop for stone
28	TL6673874400	6	0		potato	1	30	7.5YR3/2	LMS		10	flint					-55	-53	I		4	D	
						2	50	7.5YR4/4	LMS	M	10	flint				N							
						3	55	10YR6/6	MS	M	0					N							Stop for stone
29	TL6690074400	1	0		potato	1	30	7.5YR3/2	MSL		2	hard stone					-13	-12	I		3a	D	stop for stone
						2	70	7.5YR4/4	MSL	M	2	hard stone				N							
						3	120	7.5YR5/1	LMS	M	5	hard stone		7.5YR6/6		N							
30	TL67000 74400	-2	0			1	30	10YR3/2	MSL		10	hard stone					-24	-20	I		3b	D	
						2	50	10YR4/4	MSL	M	10	hard stone				N							stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
31	TL6580074300	-1	0			1	30	7.5YR4/2	MSL		15%	hard stone	10%>2cm				-38	-34	I	calc	3b	D	
						2	45	7.5YR4/4	MSL	M	15	hard stone				N							stop for chalk
32	TL6590074300	-2	0		stubble	1	30	7.5YR4/2	MSL		15%	hard stone	10%>2cm				-38	-34	I	calc	3b	D	
						2	45	7.5YR4/4	MSL	M	15	hard stone				N							stop for chalk
34	TL6600074300	0	0			1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-23	-29	I	calc	3b	D	
						2	45	7.5YR4/4	MSL	M	15	hard stone				N							
						3	65	7.5YR6/2	MSL	M	80	chalk		7.5YR6/6		N							stop for chalk
35	TL6640074400	-3			Potato	1	30	10YR2/1	MCL		15	hard stone	10%>2cm				-23	-19	I		3b	D	
						2	40	10YR2/1	MCL	M	10	hard stone				N							
						3	50	10YR6/1	MCL	M	80	chalk				N							stop for stone
36	TL6650074300	-3	0		potato	1	30	7.5YR3/2	MCL		20	flint	10%>2cm				-32	-28	I	Calc	3b	D	
						2	40	10YR6/1	MCL	M	20	chalk and flint				N							stop for chalk
37	TL6660074300	-3	0			1	30	7.5YR3/2	MSL		10	hard stone					4	-23	I		3a	D	
						2	40	7.5YR4/4	LMS	M	10	hard stone				N							
						3	100	7.5YR5/6	MSL	m	5	hard stone				N							stop for stone, very low fall for drainage
38	TL6670074300	-3	0			1	40		LMS		10	hard stone					-59	-55	I		4	D	stop for stone
39	TL66800743000	-7	0			1	40		LMS		10	hard stone					-59	-55	I		4	D	stop for stone
40	TL6690074316	-1	0			1	40		MSL		10	hard stone					-37	-33	I		3b	D	stop for stone
41	TL6700074300	-1	0			1	40		LMS		10	hard stone					-59	-55	I		4	D	stop for stone
42	TL6580074200	-3	0			1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-42	-41	I	calc	3b	D	
						2	45	7.5YR4/4	MSL	M	15	hard stone				N							
						3	65	7.5YR6/2	LMS	M	50	hard stone				N							Stop for stone
43	TL6590074200	-8	0		stubble	1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-43	-39	I	calc	3b	D	
						2	40	7.5YR4/4	MSL	M	15	hard stone				N							Stop for stone
44	TL6600074200	-3	0			1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-43	-39	I	calc	3b	D	
						2	40	7.5YR4/4	MSL	M	15	hard stone				N							Stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
45	TL6610074200	0	0		stubble	1	30	10YR3/2	MCL		5	hard stone					-2	-13	I	calc	3a	D	
						2	40	10YR4/4	MCL	M	5	hard stone				N							
						3	70	10YR5/6	SCL	M	5	hard stone		10YR6/2		n							stop for stone
46	TL6630074100	-1	0		potato stubble	1	30	10YR2/1	HCL		20	hard stone					-24	-27	I		3b	D	
						2	60	10YR6/1	HCL	M	80	soft chalk				N							stop for chalk
47	TL6640074300	-5	2	NW	potato	1	30	10YR3/2	MCL		10	flint					9	-27	I		3a	D	
						2	80	10YR6/1	MCL	M	80	soft chalk				N							stop for stone
48	TL6650074200	-6	2	N		1	30	7.5yr3/2	MSL		15	hard stone	10%>2cm				-22	-42	I	calc	3b	D	
						2	90	7.5yr4/4	LMS	M	10	hard stone				N							
49	TL6660074200	-4	0			1	30	7.5YR3/2	LMS		25	gravel					-64	-60	I		4	D	
						2	40	7.5YR4/4	LMS	M	25	gravel											stop for stone
50	TL6668274200	1	0		potato	1	30	7.5YR3/2	MSL		5	hard stone					0	-14	I		3a	D	
						2	60	7.5YR4/4	MSL	M	5	hard stone				N							
						3	80	7.5YR5/6	LMS	M	20	hard stone											stop for stone
51	TL6677774200	4	0		potato	1	30	10YR3/2	LMS		5	flint					-17	-36	I		3b	D	borrow pit
						2	80	10YR4/4	LMS	M	5	flint				N							stop for stone
52	tL6690074200	4	0		potato	1	30	7.5YR3/2	MSL		10	flint					2	-13	I		3a	D	
						2	70	7.5YR4/4	MSL	M	10	flint				N							stop for chalk
53	TL6696774200	-3	0		potato	1	30	7.5YR3/2	MSL		15	flint					-10	-22	I		3a	D	
						2	70	7.5YR4/4	MSL	M	10	flint				N							stop for stone and chalk
54	TL6550074100	-3	0			1	35	7.5YR3/2	MSL	M	20	hard stone	10%>2cm				-51	-47	I		4	D	stop for chalk
55	TL6560074100	-3	0			1	35	7.5YR3/2	MSL	M	20	hard stone	10%>2cm				-51	-47	I		4	D	stop for chalk
56	TL6570574108	-1	0			1	30	7.5YR3/2	MSL		10	hard stone					-23	-23	I		3b	D	
						2	55	7.5YR4/4	MSL		10	hard stone											stop for chalk
57	TL6580074100	-4	0			1	30	7.5YR3/2	MSL		10	hard stone					14	-13	I		3a	D	
						2	80	7.5YR4/4	MSL		10	hard stone											stop for chalk
58	TL6591874098	0	0			1	35	7.5YR3/2	MSL	M	20	hard stone	10%>2cm				-51	-47	I		4	D	stop for chalk

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59	TL6600074100	-3	0			1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-33	-29	I		3b	D	
						2	45	7.5YR4/4	MSL	M	15	hard stone				N							stop for stone
60	TL6610074100	5	0		stubble	1	30	10YR3/2	MCL		5	hard stone					-10	-14	I	calc	3a	D	
						2	60	10YR4/4	MCL	M	5	hard stone				N							Stop for chalk and flint
61	TL6630074100	-1	0		potato stubble	1	30	10YR3/2	MCL		15	flint					-24	-27	I	calc	3b	D	
						2	40	10YR4/4	MCL	M	15	flint				N							
						3	60	10YR6/1	MCL	M	80%	soft chalk				N							Stop for stone
62	TL6640074100	-3	2	N	potato	1	30	7.5YR3/2	MSL		15%	hard stone	10%>2cm				-29	-34	I		3b	D	
						2	65	7.5YR4/4	LMS	M	15%	hard stone				N							Stop for stone
63	TL6650074100	-1	level			1	30	7.5YR3/2	MSL		20%	hard stone					-43	-39	I	calc	3b	D	
						2	40	7.5YR4/4	MSL	M	20%	hard stone and chalk				N							stop for chalk
65	TL6668974100	2	0		pot	1	30	7.5YR3/2	LMS		10%	flint					-29	-42	I		3b	D	
						2	60	7.5YR4/4	LMS	M	10%	flint				N							
						3	80	7.5YR6/3	MS	M	20%	chalk				N							stop for chalk
66	TL6678474100	3	0		pot	1	30	7.5YR3/2	MSL		10	flint					-7	-14	I		3a	D	
						2	60	7.5YR4/4	MSL	M	10	flint				N							Stop for stone
67	TL6690874100	2	0		potato	1	30	7.5YR3/2	MSL		10	flint					-22	-23	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							
						3	60	7.5YR5/4	LMS	M	20	flint				N							stop for stone
68	TL6697774100	1	0		potato	1	30	7.5YR3/2	MSL		10	flint					-12	-17					
						2	50	7.5YR4/4	MSL	M	10	flint				N			I		3a	D	
						3	60	7.5YR7/2	MSL	M	50	chalk				N							stop for stone
69	TL6530074000	0	0		stubble	1	35	10YR4/1	MSL		15%	hard stone	10%>2cm				-39	-35	I	calc	3b	D	stop for chalk
70	TL6540074000	-1	0		stubble	1	35	10YR4/1	MSL		10%	hard stone					-34	-30	I	calc	3b	D	stop for chalk
71	TL6550074000	?	0		stubble	1	35	10YR4/1	MSL		15%	hard stone	10%>2cm				-39	-35	I	calc	3b	D	stop for chalk
72	TL6560074000	-1	0		stubble	1	30	7.5YR3/2	MSL		10	hard stone					15	-13	I		3a	D	
						2	80	7.5YR4/4	MSL		10	hard stone											stop for chalk

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73	TL6570074000	?	0		stubble	1	35	7.5YR3/2	MSL	M	20	hard stone	10%>2cm				-49	-45	I		3b / 4	D	stop for chalk
74	TL6580074000	?	0			1	35	7.5YR3/2	MSL	M	20	hard stone	10%>2cm				-49	-45	I		3b / 4	D	stop for chalk
75	TL6590074000	?	0		stubble	1	30	7.5YR3/2	MSL		10	hard stone					-22	-18	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	hard stone				N							stop for chalk
76	TL6600074000	?	0			1	35	7.5YR3/2	MSL	M	20	hard stone	10%>2cm				-49	-45	I		3b / 4	D	stop for chalk
77	TL663007400	-1	0		potato	1	30	10YR3/2	MCL		15	flint					-11	-21		calc	3a	D	
						2	50	10YR4/4	MCL	M	15	flint				N							
						3	65	10YR5/1	MCL	M	20	soft chalk		10YR5/6		N							
						4	70	10YR5/1	MCL	M	80%	soft chalk				N							stop for chalk
78	TL664007400	-2	0		potato	1	30	7.5YR3/2	MCL		15	flint	10%>2cm				-35	-32	I	calc	3b	D	
						2	65	7.5YR4/4	MSL	M	15	flint				N							Stop for Stone
79	TL6670074000	3	0		potato	1	30	7.5YR3/2	LMS		10	flint					-31	-46	I		3b	D	
						2	50	7.5YR4/4	LMS	M	10	flint				N							
						3	80	7.5YR5/6	MS	M	0					N							stop for stone
80	TL6679474000	1	0		pot	1	30	7.5YR3/2	MSL		10	flint					-10	-15	I		3a	D	
						2	60	7.5YR4/4	MSL	M	10	flint				N							Stop for stone
81	TL6691674000	3	0		potato	1	30	7.5YR3/2	MSL		10	flint					-22	-23	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							
						3	60	7.5YR5/4	LMS	M	20	flint				N							stop for stone
82	TL6698774000	1	1			1	30	7.5YR3/2	MSL		10	flint					-12	-17	I		3a	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							
						3	60	7.5YR7/2	MSL	M	50	chalk				N							stop for stone
83	TL6530073900	-2	0		stubble	1	30	7.5YR4/2	MSL		20	hard stone	10%>2cm				-50	-46	I	calc	4	D	Stop for chalk
84	TL654007390	-4	0		stubble	1	30	7.5YR4/2	MSL		20	hard stone	10%>2cm				-50	-46	I	calc	4	D	Stop for chalk
85	TL6550073900	-4	0		stubble	1	30	7.5YR4/2	MSL		20	hard stone	10%>2cm				-50	-46	I	calc	4	D	Stop for chalk
86	TL6560073900	1	0		stubble	1	30	7.5YR3/2	MSL		10	flint					-30	-26	I	calc	3b	D	
						2	50	7.5YR5/4	MSL	M	10	flint				N							
						3	70	7.5YR6/4	MS	M	0					N							Stop for stone

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87	TL6570073900	-2	0		stubble	1	30	7.5YR3/2	MSL		15	flint	10%>2cm				-22	-18	I	calc	3b	D	
						2	50	7.5YR5/4	MSL	M	15	flint				N							Stop for Chalk
89	TL6580073900	-3	0			1	30	7.5YR3/2	MSL		15	flint	10%>2cm				-14	-25		calc	3a	D	
						2	70	7.5YR5/4	MSL	M	15	flint				N							Stop for Chalk
90	TL6590073900	-5	0			1	30	7.5YR4/2	MSL		15	hard stone	10%>2cm				-4	-25		calc	3a	D	
						2	80	7.5YR5/4	MSL	M	15	hard stone				N							stop for chalk
91	TL6600073900	1	0		plough	1	30	7.5YR4/2	MSL		15	hard stone	10%>2cm				-4	-25		calc	3a	D	
						2	80	7.5YR5/4	MSL	M	15	hard stone				N							stop for chalk
92	TL6670073900	5			track																		Non Ag
93	TL6680573900	7	0		potato	1	30	7.5YR3/2	MSL		10	flint					-15	-27	I		3a	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							
						3	75	7.5YR6/2	LMS	M	20	chalk				N							stop for chalk
94	TL6692273906	3	0		potato	1	30	7.5YR3/2	MSL		10	flint					-35	-40	I		3b	D	
						2	70	7.5YR4/4	LMS	M	10	flint				N							stop for stone
95	TL6699673900	4	0		potato	1	30	10YR3/2	LMS		10	flint					-46	-42	I		3b	D	
						2	50	10YR4/4	LMS	M	10	flint				N							stop for stone
96	TL6540073800	-3	0		Stubble	1	30	7.5YR4/2	MSL		10	flint					-35	-31	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							
						3	65	7.5YR6/6	LMS	M	2	flint				N							stop for stone
97	TL6550073800	-6	0		stubble	1	30	7.5YR4/2	MSL		15	hard stone	10%>2cm				-22	-27	I	calc	3b	D	
						2	80	7.5YR5/4	MSL	M	20	hard stone				N							stop for chalk
99	TL6570073800	-4	0		plough	1	30	7.5YR3/2	MSL		15	flint	10%>2cm				-33	-29	I	calc	3b	D	
						2	50	7.5YR5/4	MSL	M	15	flint				N							Stop for Chalk
100	TL6580073800	2	0		plough	1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-23	-27	I		3b	D	
						2	60	7.5YR4/4	MSL	M	15	hard stone				N							stop for stone
101	TL6590073800	1	0		stubble	1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-42	-38	I		3b	D	
						2	45	7.5YR4/4	MSL	M	20	hard stone				N							stop for stone
102	TL6600073800	-4	2	E	plough	1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-8	-22	I		3a	D	
						2	70	7.5YR4/4	MSL	M	10	hard stone				N							

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						3	90	7.5YR5/2	LMS	M	20	hard stone			7.5YR5/6	N							stop for stone
103	TL6610073800	-3	0		conservation strip	1	40	10YR3/2	HCL		2	hard stone									3b	flood risk	
						2	120	black	peat	M	0					N							Flood risk
104	TL6620073800	2	2	W		1	30	10YR3/2	MSL		15	hard stone	10%>2cm				-27	-30	I	calc	3b	D	
						2	40	10YR4/4	MSL	M	15	hard stone				N							
						3	60	10YR7/1	MSL	M	80	chalk				N							stop for chalk
105	TL6671673800	6	0			1	30	7.5YR3/2	LMS		5	flint					-50	-52	I		3b /4	D	
						2	65	7.5YR4/4	LMS	M	5	flint				N							
						3	80	7.5YR5/6	MS	M	0					N							stop for stone
106	TL6678773800	7	0			1	30	7.5YR3/2	LMS		5	flint					-50	-52	I		3b / 4	D	
						2	60	7.5YR4/4	LMS	M	5	flint				N							
						3	80	7.5YR6/6	MS	M	0					N							stop for stone
107	TL6685873800	7	0			1	30	7.5YR3/2	MSL		10	flint					-31	-28	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							stop for chalk
108	TL6700073800	3	0		potato	1	30	7.5YR3/2	LMS		10	hard stone					-46	-46	I		3b	D	
						2	60	7.5YR4/4	LMS	M	10	hard stone				N							
						3	75	7.5YR6/6	LCS	M	20	hard stone				N							stop for stone
110	TL6560073700	0	0		plough	1	30	7.5YR4/2	MSL		10	hard stone					-52	-49	I	calc	4	D	Stop for chalk
111	TL6570073700	1	0		plough	1	30	7.5YR3/2	MSL		15	flint	10%>2cm				-36	-33		calc	3b	D	
						2	50	7.5YR5/4	MSL	M	15	flint				N							Stop for Chalk
112	TL6580073700	2	0		plough	1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-46	-43	I		3b	D	
						2	40	7.5YR4/4	MSL	M	15	hard stone				N							stop for stone
113	TL6590073700	6	0			1	30	7.5YR3/2	MSL		20	hard stone	15%>2cm				-50	-47	I		3b / 4	D	
						2	40	7.5YR4/4	MSL	M	20	hard stone				N							stop for stone
114	TL6600073700	5	0			1	30	7.5YR3/2	MSL		20	hard stone	15%>2cm				-50	-47	I		3b / 4	D	
						2	40	7.5YR4/4	MSL	M	20	hard stone				N							stop for stone
115	TL6630073700	5	0			1	30	7.5YR3/2	LMS		15	hard stone	10%>2cm				-74	-71	I		4	D	stop for stone
116	TL6650073700	3	0		sugar beet	1	30	10YR3/2	MS		20	hard stone	10%>2cm				-81	-78	I		4	D	stop for stone

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117	TL6660073700	6	0		sugat beet	1	30	7.5YR3/2	LMS		15	hard stone	10%>2cm				-54	-51	I		4	D	
						2	50	7.5YR4/4	LMS	M	15	hard stone				N							stop for stone
118	TL6672273700	5	0			1	30	7.5YR3/2	MSL		10	flint					-31	-28	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							stop for chalk
119	TL6679573700	6	0		potato	1	30	7.5YR3/2	MSL		10	flint					-31	-28	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							stop for chalk
120	TL6686773701	9	0			1	30	7.5YR3/2	MSL		10	flint					-31	-28	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							stop for chalk
121	TL6700873700	3	0		potato	1	30	7.5YR3/2	LMS		10	hard stone					-42	-48	I		3b	D	
						2	60	7.5YR4/4	LMS	M	10	hard stone				N							
						3	75	7.5YR6/6	MS	M	20	hard stone				N							stop for stone
124	TL6570073600	2	0		plough	1	30	7.5YR4/2	MSL		30	flint and chalk					-67	-64	I	calc	4	D	Stop for chalk
125	TL6580073600	4	0		plough	1	30	7.5YR3/2	MSL		20	hard stone	15%>2cm				-50	-47	I		3b / 4	D	
						2	40	7.5YR4/4	MSL	M	20	hard stone				N							stop for stone
126	TL6590073600	6	0			1	30	7.5YR3/2	MSL		20	hard stone	15%>2cm				-50	-47	I		3b / 4	D	
						2	40	7.5YR4/4	MSL	M	20	hard stone				N							stop for stone
127	TL6600073600	4	0			1	30	7.5YR3/2	MSL		20	hard stone	15%>2cm				-50	-47	I		3b / 4	D	
						2	40	7.5YR4/4	MSL	M	20	hard stone				N							stop for stone
128	TL6650073600	4	0		sugar beet	1	30	10YR3/2	MS		20	hard stone	10%>2cm				-82	-79	I		4	D	stop for stone
129	TL6660073600	2	0		sugar beet	1	30	7.5YR3/2	LMS		15	hard stone	10%>2cm				-54	-51	I		4	D	
						2	50	7.5YR4/4	LMS	M	15	hard stone				N							stop for stone
130	TL6673273600	6	0			1	30	10YR3/2	MSL		20	chalk					-37	-34	I		3b	D	
						2	50	10YR4/4	MSL	m	80	chalk				N							stop for chalk
131	TL6680173600	7	0			1	30	7.5YR3/2	MSL		20	flint + chalk					-44	-41	I		3b	D	
						2	40	7.5YR4/4	MSL	M	20	flint + chalk				N							stop for chalk
132	TL6687573600	6	0			1	30	7.5YR3/2	MSL		10	flint					-31	-28	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							stop for chalk
133	TL6701773600	2	0		potato	1	30	7.5YR3/2	MSL		10	flint					-30	-34	I		3b	D	

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						2	50	7.5YR4/4	LMS	M	10	hards stone				N							
						3	60	7.5YR7/2	LMS	M	80	chalk				N							stop for chalk
135	TL6540073500	6	2	NW		1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-57	-54	I		3b	D	stop for stone
136	tl6550073500	7	0			1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-57	-54	I		3b	D	stop for stone
137	TL6560073500	5	2	SE		1	30	7.5YR3/2	MSL		10	hard stone					-42	-39	I		3b	D	
						2	40	7.5YR4/4	MSL	M	10	hard stone				N							Stop for chalk
138	TL6570073500	4	2	SE		1	30	7.5YR3/2	MSL		10	hard stone					-42	-39	I		3b	D	
						2	40	7.5YR4/4	MSL	M	10	hard stone				N							Stop for chalk
139	TL6580073500	5	0			1	30	7.5YR3/2	MSL		20	hard stone	15%>2cm				-50	-47	I		3b / 4	D	
						2	40	7.5YR4/4	MSL	M	20	hard stone				N							stop for stone
140	TL6590073500	6	0			1	30	7.5YR3/2	MSL		20	hard stone	15%>2cm				-50	-47	I		3b / 4	D	
						2	40	7.5YR4/4	MSL	M	20	hard stone				N							stop for stone
141	TL6600073500	4	2	N	plough	1	30	7.5YR3/2	MSL		20	hard stone	15%>2cm				-26	-34	I		3b	D	
						2	50	7.5YR4/4	MSL	M	15	hard stone				N							
						3	70	7.5YR6/1	MSL	m	30	hard stone		7.5YR6/6		N							stop for stone
142	TL6610073500	5	0			1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-60	-57	I		4	D	stop for chalk, inspection pit found hard chalk at 35cm depth
143	TL6650073500	4	0	sugar beet		1	30	10YR3/2	MS		20	hard stone	10%>2cm				-81	-78	I		4	D	stop for stone
144	TL6660073500	3	0	sugar beet		1	30	7.5YR3/2	LMS		15	hard stone	10%>2cm				-63	-60	I		4	D	
						2	50	7.5YR4/4	LMS	M	15	hard stone				N							stop for stone
145	TL66740735020	6	0			1	30	10YR3/2	MSL		20	chalk					-36	-33	I		3b	D	
						2	50	10YR4/4	MSL	m	80	chalk				N							stop for chalk
146	TL6681073500	5	0			1	30	7.5YR3/2	MSL		10	flint					-25	-22	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							stop for chalk
147	TL6688373500	7	0	potato		1	30	7.5YR3/2	MSL		10	flint					-25	-22	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	flint				N							stop for stone
148	TL6702873500	5	0			1	30	7.5YR3/2	MSL		10	flint					-25	-22	I		3b	D	

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						2	50	7.5YR4/4	MSL	M	10	flint				N							stop for stone
151	TL6530073400	6	0			1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-57	-54	I		3b	D	stop for stone
152	TL6540073400	8				1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-57	-54	I		3b	D	stop for stone
153	TL6550073400	7	2	S		1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-57	-54	I		3b	D	stop for stone
154	TL6560073400	4	2	S		1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-57	-54	I		3b	D	stop for stone
155	TL6570073400	2	2	SE		1	30	7.5YR3/2	MSL		10	hard stone					-25	-22	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	hard stone				N							Stop for chalk
158	TL6600073400	4	0			1	30	7.5YR3/2	MSL		20	hard stone	15%>2cm				-35	-32	I		3b	D	
						2	50	7.5YR4/4	MSL	M	20	hard stone				N							stop for stone
159	TL6610073400	2	2	NE	plough	1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-19	-28	I		3b	D	
						2	65	7.5YR5/2	MSL	M	20	hard stone				N							stop for chalk
160	TL664007340	4	0		sugar beet	1	30	10YR3/2	MS		20	hard stone	10%>2cm				-81	-78	I		4	D	stop for stone
161	TL6650073400	5	0		sugar beet	1	30	10YR3/2	MS		20	hard stone	10%>2cm				-81	-78	I		4	D	stop for stone
162	TL6660073400	5	0		sugar beet	1	30	10YR3/2	MS		20	hard stone	10%>2cm				-81	-78	I		4	D	stop for stone
163	TL6580073400	-2	2	S		1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-60	-57	I		4	D	stop for stone
164	TL6530073300	9	0			1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-60	-57	I		4	D	stop for stone
165	TL6540073300	7	0			1	25	7.5YR4/2	MSL		20	hard stone	15%>2cm				-60	-57	I		4	D	stop for stone
166	TL6550073300	7	2	S		1	30	7.5YR3/2	MSL		10	hard stone					-52	-49	I	calc	4	D	stop for chalk
167	TL6560073300	2	2	S		1	30	10YR3/2	MSL		15	hard stone	10%>2				-7	-29	I		3b	D	
						2	80	10YR4/4	MSL	M	15	hard stone				N							stop for stone
168	TL6570073300	0	2	SE		1	30	7.5YR3/2	MSL		10	hard stone					-36	-33	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	hard stone				N							Stop for chalk
169	TL6580073300	-4	0			1	30	10YR3/2	MSL		15	hard stone	10%>2				-7	-29	I		3b	D	
						2	80	10YR4/4	MSL	M	15	hard stone				N							stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
170	TL6590073300	-2	2	S		1	30	7.5YR3/2	MSL		10	hard stone					-42	-39	I		3b	D	
						2	40	7.5YR4/4	MSL	M	10	hard stone				N							Stop for chalk
171	TL6600073300	-1	0			1	30	7.5YR3/2	LMS		15	hard stone	10%>2cm				-62	-59	I		4	D	
						2	40	7.5YR4/4	LMS	M	15	hard stone				N							Stop for stone
172	TL6610073300	5	0			1	30	7.5YR3/2	MSL		20	hard stone	15%>2cm				-50	-47	I		3b / 4	D	
						2	40	7.5YR4/4	MSL	M	20	hard stone				N							stop for stone
173	TL6620073300	2	2	E	plough	1	30	10YR3/2	MCL		5	hard stone					-26	-29	III	calc	3a / 3b	D	
						2	60	10YR5/4	HCL	P	5	hard stone		10YR5/1	Y	Y					3b	flood risk	
174	TL6540073200	4	0			1	30	10YR3/2	LMS		10	hard stone					-24	-44	I		3b	D	
						2	80	10YR4/4	LMS	M	10	hard stone				N							
						3	100	10YR6/6	MS	M	20	hard stone				N							stop for stone
175	TL6550073200	1	2	S		1	30	7.5YR3/2	MSL		10	hard stone					-11	-24	I	calc	3a	D	
						2	70	7.5YR4/4	MSL	M	10	hard stone				N							Stop for stone
176	TL6560073200	-2	2	S		1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-60	-57	I		4	D	stop for stone
177	TL6570073200	-4	0			1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-60	-57	I		4	D	stop for stone
178	TL6580073200	-1	0			1	30	7.5YR4/2	MSL		20	hard stone	15%>2cm				-60	-57	I		4	D	stop for stone
179	TL6590073200	-1	0			1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-18	-29	I		3a / 3b	D	
						2	60	7.5YR4/4	MSL	M	15	hard stone				N							
						3	70	7.5YR5/6	MSL	M	20	hard stone				n							stop for stone
180	TL6600073200	1	0			1	30	7.5YR3/2	LMS		15	hard stone	10%>2cm				-62	-59	I		4	D	
						2	40	7.5YR4/4	LMS	M	15	hard stone				N							Stop for stone
182	TL6620073200	-2	0			1	30	10YR3/2	MSL		10	hard stone					-52	-49	I		4	D	stop for chalk
183	TL6540073100	2	2	S		1	30	10YR3/2	MSL		10	hard stone					-21	-26	I		3a	D	
						2	60	10YR4/4	MSL	M	10	hard stone				N							Stop for stone
184	TL6550073100	0	2	S		1	30	7.5YR3/2	MSL		10	hard stone					-31	-28	I	calc	3b	D	
						2	50	7.5YR4/4	MSL	M	10	hard stone				N							Stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
185	TL6560073100	-2	0			1	30	7.5YR3/2	MSL		10	hard stone					-42	-39	I		3b	D	
						2	40	7.5YR4/4	MSL	M	10	hard stone				N							Stop for chalk
186	TL6570073100	-1	0			1	30	7.5YR3/2	MSL		10	hard stone					-42	-39	I		3b	D	
						2	40	7.5YR4/4	MSL	M	10	hard stone				N							Stop for chalk
187	TL6580073100	-3	0			1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-28	-37	I		3b	D	
						2	70	7.5YR4/4	LMS	M	15	hard stone				N							stop for stone
188	TL6590073100	-1	0			1	30	7.5YR3/2	LMS		10	hard stone					-38	-47	I		3b	D	
						2	70	7.5YR4/4	LMS	M	10	hard stone				N							Stop for stone
189	TL6600073100	1	0			1	30	10YR3/2	MSL		10	hard stone					-12	-25	I		3a	D	
						2	60	10YR4/4	MSL	M	10	hard stone				N							
						3	70	10YR6/6	LMS	M	30	chalk				N							stop for chalk
190	TL6610073100	2	0			1	30	10YR3/2	MSL		10	hard stone					-42	-39	I		3b	D	
						2	40	10YR4/4	MSL	M	10	hard stone				N							stop for stone
191	TL6620073100	0	0			1	30	10YR3/2	MSL		10	hard stone					-52	-49	I		4	D	stop for chalk
192	TL65500730000	1	2	S	plough	1	30	7.5YR3/2	MSL		10	hard stone					-28	-25	I		3b	D	
						2	60	7.5YR4/4	MSL	M	10	hard stone				N							
						3	70	7.5YR5/6	MSL	M	20	hard stone				N							stop for stone
193	TL6560073000	-3	0			1	30	7.5YR3/2	MSL		10	hard stone					-31	-28	I	calc	3b	D	
						2	50	7.5YR4/4	MSL	M	10	hard stone				N							Stop for stone
194	TL6570073000	-3	0			1	30	7.5YR3/2	MSL		10	hard stone					-31	-28	I	calc	3b	D	
						2	50	7.5YR4/4	MSL	M	10	hard stone				N							Stop for chalk
195	TL6580073000	-3	0			1	30	7.5YR3/2	LMS		10	hard stone					-42	-45	I		3b	D	
						2	60	7.5YR4/4	LMS	M	10	hard stone				N							stop for stone
196	TL6590073000	-2	0		seedbed	1	30	7.5YR3/2	LMS		10	hard stone					-59	-56	I		4	D	
						2	40	7.5YR4/4	LMS	M	10	hard stone				N							stop for stone
197	TL6600073000	1	0			1	30	7.5YR3/2	LMS		10	hard stone					-59	-56	I		4	D	
						2	40	7.5YR4/4	LMS	M	10	hard stone				N							stop for sandstone
198	TL6610073000	1	0			1	30	10YR3/2	MSL		10	hard stone					-52	-49	I		4	D	stop for chalk

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
199	TL6620073000	0	0			1	30	10YR3/2	MSL		10	hard stone					-42	-39	I		3b	D	
						2	40	10YR4/4	MSL	M	10	hard stone				N							stop for stone
200	TL6620072900	-1	0			1	30	10YR3/2	MSL		10	hard stone					-17	-22	I		3a	D	
						2	60	10YR4/4	MSL	M	10	hard stone				N							stop for stone
201	TL6540072900	2	0			1	30	7.5YR3/2	MSL		10	hard stone					10	-17	I	calc	3a	D	
						2	80	7.5YR4/4	MSL	M	10	hard stone				N							Stop for stone
202	TL6550072900	0	0		plough	1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-42	-39	I		3b	D	
						2	40	7.5YR4/4	MSL	M	15	hard stone				N							stop for chalk
203	TL6560072900	-1	1	W	plough	1	30	7.5YR3/2	MSL		15	hard stone	10%>2cm				-31	-28	I		3b	D	
						2	50	10YR4/4	MSL	M	15	hard stone				N							stop for stone
204	TL6570072900	1	0			1	30	7.5YR3/2	MSL		10	hard stone					3	-24	I		3a	D	
						2	100	7.5YR5/4	MSL	M	10	hard stone				N							stop for chalk, apparent buried topsoil at 70 - suspect filled in borrowpit
205	TL658007290	-2	0			1	30	7.5YR3/2	MSL		10	hard stone					-13	-26	I		3a	D	
						2	60	7.5YR4/4	MSL	M	10	hard stone				N							
						3	70	7.5YR6/6	LMS	M	50	chalk				N							stop for chalk
206	TL6590072900	1	0		seed bed	1	30	10YR3/2	LMS		10	hard stone					-36	-44	I		3b	D	
						2	60	10YR4/4	LMS	M	10	hard stone				N							
						3	70	10YR6/6	MS	M	20	hard stone				N							stop for stone
207	TL6600072900	2	0			1	30	7.5YR3/2	LMS		10	hard stone					-57	-54	I		4	D	
						2	40	7.5YR4/4	LMS	M	10	hard stone				N							stop for sandstone
208	TL6610072900	3	0			1	30	10YR3/2	MSL		10	hard stone					-52	-49	I		3b	D	stop for chalk
209	TL6620072900	1	0			1	30	7.5YR3/2	MSL		10	hard stone					-13	-26	I		3a	D	
						2	50	7.5YR4/4	MSL	M	10	hard stone				N							
						3	70	7.5YR6/6	LMS	M	20	chalk				N							stop for chalk
210	TL6540072800	3	2	SW	plough	1	30	7.5YR3/2	MSL		10	hard stone					-11	-24		calc	3a	D	
						2	70	7.5YR4/4	MSL	M	10	hard stone				N							Stop for stone
211	TL6550072800	1	0		seedbed	1	30	10YR3/2	MSL		10	hard stone					-28	-29	I		3b	D	

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						2	55	10YR5/4	MSL	M	50	chalk				N							stop for chalk
212	TL6560072800	0	0			1	30	10YR3/2	MSL		10	hard stone					-28	-29	I		3b	D	
						2	55	10YR5/4	MSL	M	50	chalk				N							stop for chalk
213	TL6570072800	-1	0			1	30	7.5YR3/2	MSL		10	hard stone					-37	-34	I		3b	D	
						2	40	7.5YR5/4	MSL	m	20	chalk				N							Stop for chalk
214	TL6580072800	-2	0			1	30	7.5YR3/2	MSL		10	hard stone					-24	-34	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	hard stone				N							
						3	80	7.5YR6/4	LMS	M	20	hard stone				N							stop for stone
215	TL6590072800	1	0			1	30	10YR3/2	LMS		10	hard stone					-67	-64	I		4	D	stop for stone
217	TL6610072800	2	0			1	30	10YR3/2	LMS		10	hard stone					-47	-50	I		3b	D	
						2	60	10YR4/4	LMS	M	10	hard stone				N							
						3	70	10YR6/6	MS	M	20	hard stone				N							stop for stone
218	TL6550072700	2	0			1	30	7.5YR3/2	MSL		10	hard stone					-27	-24			3b	D	
						2	50	7.5YR5/4	MSL	m	20	chalk				N							Stop for chalk
219	TL6560072700	2	0		seedbed	1	30	7.5YR3/2	MSL		10	hard stone					-37	-34	I		3b	D	
						2	40	7.5YR5/4	MSL	m	20	chalk				N							Stop for chalk
220	TL6570072700	0	0			1	30	10YR3/2	MSL		10	hard stone					-28	-29	I		3b	D	
						2	55	10YR5/4	MSL	M	50	chalk				N							stop for chalk
221	TL6580072700	-1	0			1	30	7.5YR3/2	MSL		10	hard stone					-37	-34	I		3b	D	
						2	40	7.5YR5/4	MSL	m	20	chalk				N							Stop for chalk
222	TL6590072700	0	0			1	30	7.5YR3/2	LMS		10	hard stone					-37	-34	I		3b	D	
						2	40	7.5YR4/4	LMS	M	10	hard stone				N							stop for sandstone
223	TL65500726000	1	0			1	30	7.5YR3/2	MSL		10	hard stone					-7	-22	I		3a	D	
						2	70	7.5YR5/4	MSL	m	20	chalk				N							Stop for chalk
224	TL6560072600	2	0		seedbed	1	30	7.5YR3/2	MSL		10	hard stone					-37	-34	I		3b	D	
						2	40	7.5YR5/4	MSL	m	20	chalk				N							Stop for chalk
225	TL6570072600	1	0			1	30	7.5YR3/2	MSL		10	hard stone					-24	-34	I		3b	D	
						2	50	7.5YR4/4	MSL	M	10	hard stone				N							
						3	80	7.5YR6/4	LMS	M	20	hard stone				N							stop for stone

Agricultural Land Classification (ALC) Survey – Sunnica, Elms Rd

17/10/2019 – Fair

18/10/2019 – Fair after rain

21/10/2019 - Fair

29/07/2019 – Fair

Label for soil sample data locations plotted: ER

Table 2 - Soil data for sample points in Elms Road

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
1	TL6870072000	13	0		Stubble	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
2	TL6880072000	13	1	E	stubble	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
3	TL6860071900	20	1	E	stubble	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
4	TL6870071900	16	0		stubble	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
5	TL6880071900	15	0		stubble	1	30	7.5YR4/4	MS		10	flint					-75	-71			4	D	stop for stone
6	TL6890071900	12	0		stubble	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
7	TL6850071700	5	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
8	TL6860071800	2	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
9	TL6870071800	1	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
10	TL6880071800	13	0		stubble	1	30	7.5YR4/4	MS		10	flint					-75	-71			4	D	stop for stone
11	TL6890071800	15	0		stubble	1	30	7.5YR4/4	MS		10	flint					-75	-71			4	D	stop for stone
13	TL6850071700	3	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
14	TL6860071700	1	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
15	TL6870071700	7	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
16	TL6880071700	6	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
17	TL6890071700	4	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
18	TL6900071700	13	0		cover crop	1	30	7.5YR4/4	MS		10	flint					-75	-71			4	D	stop for stone
19	TL6910071700	9	0		cover crop	1	30	7.5YR4/4	MS		10	flint					-75	-71			4	D	stop for chalk
21	TL6840071600	7	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
22	TL6850071600	7	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
23	TL6860071600	5	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
24	TL6870071600	6	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
25	TL6880071600	8	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
26	TL6890071600	12	0			1	30	7.5YR4/4	MS		10	flint					-75	-71			4	D	stop for stone
27	TL6900071600	13	0			1	30	7.5YR4/4	MS		10	flint					-75	-71			4	D	stop for stone
28	TL6910071600	11	0		cover	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
30	TL6840071500	9	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
32	TL6850071500	9	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
33	TL6860071500	9	0			1	30	7.5YR4/2	MS		10	hard stone					-75	-71			4	D	stop for stone
34	TL6870071500	10	0			1	30	7.5YR4/2	MS		20	flint					-75	-71			4	D	stop for stone
36	TL6890071500	15	0			1	30	7.5YR4/4	MS		10	flint					-75	-71			4	D	stop for stone
37	TL6900071500	14	0			1	30	7.5YR4/4	MS		10	flint					-75	-71			4	D	stop for chalk
38	TL6910071500	12	0		cover crop	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
40	TL6860071400	9	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	55	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
42	TL6880071400	12	0			1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
43	TL6890071400	12	0			1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
44	TL6900071400	14	0			1	30	7.5YR4/4	MS		10	flint					-75	-71			4	D	stop for stone
45	TL6910071300	11	0		WW	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
47	TL6850071300	7	0			1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk
48	TL6860071300	4	0			1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk
50	TL6880071300	14	0			1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
51	TL6890071300	14	0			1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
52	TL6900071300	14	0			1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
53	TL6910071300	10	0		WW	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
55	TL6850071200	4	0			1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk
56	TL6860071100	6	0			1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
58	TL6880071200	11	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
60	TL6900071200	13	0		WW	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
61	TL6910071200	12	0		WW	1	30	7.5YR4/4	MS		10	flint					-70	-66	I		4	D	
						2	40	7.5YR5/4	MS		10	flint											stop for stone
63	TL6840071100	8	0			1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk
64	TL6850071100	6	0			1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk
65	TL6860071100	6	0			1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk
66	TL6870071100	5	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
67	TL6880071100	11	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
68	TL6890071100	11	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
69	TL6900071100	12	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
70	TL6910071100	13	0		WW	1	30	7.5YR4/4	MS		20	flint	10%>2cm				-75	-71	I		4	D	
						2	40	7.5YR5/4	MS		20	flint											stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
72	TL6830071000	5	0			1	30	7.5YR4/2	MS	M	10	hard stone					-75	-71			4	D	stop for stone
73	TL6840071000	6	0			1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk
74	TL6850071000	6	0			1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk
75	TL6860071000	11	0			1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk
76	TL6870071000	9	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
79	TL6900071000	10	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
80	TL6910071000	12	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
81	TL6830070900	9	0		covercrop	1	30	7.5YR4/2	MS	M	20	hard stone	10%>2cm				-75	-71			4	D	stop for stone
82	TL6840070900	12	0			1	30	7.5YR4/2	MS	M	20	hard stone	10%>2cm				-75	-71			4	D	stop for stone
85	TL6870070900	15	0		seedbed	1	30	7.5YR4/3	LMS		10	hard stone					-46	-42	I	calc	3b	D	
						2	40	7.5YR5/4	LMS	M	10	hard stone				N							
						3	50	7.5YR6/8	LMS	M	50	chalk				N							stop for chalk
86	TL6880070900	15	0		seedbed	1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
87	TL6890070900	19	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I		4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N							Stop for stone
89	TL6840070800	8	0		headland	1	30	7.5YR4/2	MS	M	10	hard stone					-75	-71			4	D	stop for stone
90	TL6870070800	13	0		barley	1	40	7.5YR3/2	LMS		8	chalk					-47	-43	I		3b	D	stop for chalk

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato		Wetness Class	Calc	ALC Grade	Limitation	Notes
91	TL6880070800	9	0		onion	1	25	7.5YR4/3	LMS		8	hard stone					40	-47	I			3b	D	
						2	40	7.5YR4/4	LMS	M	8	hard stone				N								
						3	70	7.5YR5/6	MS	M	8	hard stone				N								stop for stone
92	TL6890070800	17	0			1	30	7.5YR4/2	MS	M	10	hard stone					-75	-71				4	D	stop for stone
93	TL6900070800	16	0			1	30	7.5YR4/2	MS		10	hard stone					-70	-66	I			4	D	
						2	40	7.5YR4/4	MS	M	10	hard stone				N								Stop for stone
94	TL6870070700	12	0		barley	1	40	7.5YR3/2	LMS		8	chalk					-49	-45	I			3b / 4	D	stop for chalk
95	TL6880070700	14	0		barley	1	40	7.5YR3/2	LMS		8	chalk					-49	-45	I			3b / 4	D	stop for chalk
96	TL6890070700	14	0		barley	1	40	7.5YR3/2	LMS		8	chalk					-49	-45	I			3b / 4	D	stop for chalk
97	TL6870070600	13	0		barley	1	40	7.5YR3/2	LMS		8	chalk					-49	-45	I			3b / 4	D	stop for chalk
98	TL6880070600	13	0		barley	1	40	7.5YR3/2	LMS		8	chalk					-49	-45	I			3b / 4	D	stop for chalk
99	6890070600	14	0		barley	1	40	7.5YR3/2	LMS		8	chalk					-49	-45	I			3b / 4	D	stop for chalk

Agricultural Land Classification (ALC) Survey – Sunnica, Manor Farm

17/10/19 – Fair

18/10/19 – Fair after Rain

21/10/19 – Fair

Label for soil sample data locations plotted: MF

Table 3 - Soil data for sample points in Manor Farm

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade		Limitation	Notes
2	TL6930073300	4	0		sugar beet	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4	D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N								stop for chalk
6	TL6930073200	3	0		sugar beet	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4	D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N								stop for chalk
7	TL6870073100	3	0		Seedbed	1	30	7.5YR3/2	MS		5	hard stone					5	-12	I		3b		topsoil	
							70	7.5YR6/6	ZL	M	5	hard stone				N								stop for stone
8	TL68800731000	4	0		seedbed	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
9	TL6890073100	1	0		stubble	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
10	TL6900073100	5	0		per past	1	30	7.5YR3/2	MS		2	hard stone					-36	-56	I			4	D	borrow pit
						2	120	7.5YR4/4	MS	M	2	hard stone				N								
11	TL6910073100	6	0		per past	1	10	black	fiberous peat		0						-49	-45	I		3b		D	borrow pit
						2	30	10YR5/2	MS	M	0					N								Stop for stone
12	TL6920073100	6	0		coservation strip	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
13	TL6930073100	9	0		sugar beet	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4	D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N								stop for chalk
14	TL6850073000	3	0			1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
17	TL6880073000	4	0		seedbed	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
18	TL6890073000	1	0			1	30	7.5YR3/2	MS		15	flint					-71	-67	I			4	D	
						2	45	7.5YR4/4	MS	M	15	flint				N								stop for stone
21	TL69200730000	6	0		conservation strip	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade		Limitation	Notes
22	TL6820072900	3	0			1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
23	TL6830072900	4	0			1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
24	TL6840072900	8	0			1	30	7.5YR3/2	MS		30	gravel hard					-75	-71	I			4	D	stop for stone, borrow pit
25	TL6850072900	8	0			1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
26	TL6860072900	5	0		game cover	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
27	TL6870072900	2	0		seedbed	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4	D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N								stop for chalk
28	TL6880072900	5	0		seedbed	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4	D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N								stop for chalk
29	TL6890072900	2	0		seedbed	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
30	TL6900072900	1	0		stubble	1	30	7.5YR3/2	MS		10	flint					-69	-65	I			4	D	
						2	45	7.5YR4/4	MS	M	10	flint				N								Stop for stone
32	TL6820072800	5	0			1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
33	TL6830072800	6	0			1	30	7.5YR3/2	MS		20	gravel					-65	-61	I			4	D	
						2	50	7.5YR5/4	MS	M	30	gravel				N								stop for stone
34	TL6840072800	8	0		PP	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
35	TL6850072800	6	0		plough	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
36	TL6860072800	2	0		plough	1	30	7.5YR3/2	LMS		15	hard stone	10%>2cm				-43	-48	I		3b		D	
						2	60	7.5YR5/4	LMS	M	15	hard stone				N								
						3	90	7.5YR5/6	MS	M	10	hard stone				N								stop for stone
37	TL6870072800	5	0		seedbed	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4	D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N								stop for chalk
38	TL6880072800	3	0		sugarbeet	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4	D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N								stop for chalk
39	TL6890072700	3	0		sugarbeet	1	30	7.5YR3/2	MS		15	flint					-71	-67	I			4	D	
						2	45	7.5YR4/4	MS	M	15	flint				N								stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade		Limitation	Notes
40	TL6900072800	3	0		grass	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	
41	TL6820072700	5	0		sugar beet	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	
42	TL6830072700	2	0		sugar beet	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	
43	TL6840072700	9	0		sugar beet	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	
44	TL6850072700	7	0		plough	1	30	7.5YR3/2	LMS		10	Flint					-27	-33	I		3b		D	
						2	65	7.5YR6/5	HCL	M	10	flint			N	N								stop for stone
45	TL6860072700	4	0			1	30	7.5YR3/2	LMS		10	flint					-41	-43	I		3b		D	borderline MSL
						2	40	7.5YR4/4	LMS	M	10	flint				N								
						3	60	7.5YR6/6	LMS	M	10	flint				N								stop for stone
46	TL6870072700	7	0		sugarbeet	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4	D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N								stop for chalk
47	TL6880072700	6	0		sugarbeet	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4	D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N								stop for chalk
48	TL6890072700	3	0		sugarbeet	1	30	7.5YR3/2	MS		15	flint					-71	-67	I			4	D	
						2	45	7.5YR4/4	MS	M	15	flint				N								stop for stone
49	TL6900072700	3	0		Grass	1	20	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
50	TL6820072500	5	0		sugar beet	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
51	TL6830072600	5	0		sugar beet	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
52	TL6840072600	7	0			1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4	D	stop for stone
53	TL6850072600	9	0		plough	1	30	7.5YR3/2	LMS		10	flint					-41	-43	I		3b		D	
						2	40	7.5YR4/4	LMS	M	10	flint				N								
						3	60	7.5YR6/6	LMS	M	10	flint				N								stop for stone
54	TL6860072600	3	0		plough	1	30	7.5YR3/2	LMS		10	flint					-41	-43	I		3b		D	
						2	40	7.5YR4/4	LMS	M	10	flint				N								
						3	60	7.5YR6/6	LMS	M	10	flint				N								stop for stone
55	TL6870072600	8	0		sugar beet	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4	D	

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						2	40	7.5YR4/4	LMS	M	10	chalk				N							stop for chalk
56	TL6880072600	7	0		sugar beet	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4 D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N							stop for chalk
57	TL6890072600	5	0		sugar beet	1	30	7.5YR3/2	LMS		10	flint					-52	-48	I			4 D	
						2	40	7.5YR4/4	LMS	M	10	chalk				N							stop for chalk
58	TL6900072700	6	0		grass	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4 D	stop for stone
59	TL6820072500	5	0		seed bed	1	30	7.5YR3/2	LMS		10	hard stone					-45	-44	I		3b	D	
						2	55	7.5YR4/4	LMS	M	10	hard stone				N							stop for stone
60	TL6830072500	6	0		plough	1	30	7.5YR3/2	LMS		10	hard stone					-45	-44	I		3b	D	
						2	55	7.5YR4/4	LMS	M	10	hard stone				N							stop for stone
61	TL6840072500	5	0			1	30	7.5YR3/2	LMS		10	hard stone					-43	-52	I		3b	D	
						2	40	7.5YR4/4	LMS	M	10	hard stone				N							
						3	80	7.5YR5/6	MS	M	0					N							Stop for stone
62	TL6850072500	7	0			1	30	7.5YR3/2	MSL		10	hard stone					-30	-26	I	calc	3b	D	
						2	50	7.5YR4/4	MSL	M	10	hard stone				N							stop for stone
63	TL6860072500	4	0		plough	1	30	7.5YR3/2	LMS		10	flint					-41	-43	I		3b	D	
						2	40	7.5YR4/4	LMS	M	10	flint				N							
						3	60	7.5YR6/6	LMS	M	10	flint				N							stop for stone
64	TL6870072500	5	0			1	30	7.5YR3/2	LMS		10	flint					-41	-43	I		3b	D	
						2	40	7.5YR4/4	LMS	M	10	flint				N							
						3	60	7.5YR6/6	LMS	M	10	flint				N							stop for stone
66	TL6890072500	8	0		conservation buffer	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I			4 D	stop for stone
68	TL6820072400	7	0			1	30	7.5YR3/2	LMS		10	hard stone					-45	-44	I		3b	D	
						2	55	7.5YR4/4	LMS	M	10	hard stone				N							stop for stone
69	TL6830072400	3	0			1	30	7.5YR3/2	LMS		10	hard stone					-45	-44	I		3b	D	
						2	60	7.5YR4/4	LMS	M	10	hard stone				N							stop for stone
70	TL6840072400	8	0		plough	1	30	7.5YR3/2	LMS		10	hard stone					-28	-42	I		3b	D	
						2	70	7.5YR4/4	LMS	M	10	hard stone				N							stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
71	TL6850072400	7	0		plough	1	30	7.5YR3/2	LMS		10	hard stone					-45	-44	I		3b	D	
						2	55	7.5YR4/4	LMS	M	10	hard stone				N							stop for stone
72	TL6860072400	6	0		plough	1	30	7.5YR3/2	LMS		10	flint					-41	-43	I		3b	D	
						2	40	7.5YR4/4	LMS	M	10	flint				N							
						3	60	7.5YR6/6	LMS	M	10	flint				N							stop for stone
78	TL6820072300	8	0			1	30	7.5YR3/2	LMS		10	hard stone					-45	-44	I		3b	D	
						2	55	7.5YR4/4	LMS	M	10	hard stone				N							stop for stone
79	TL6830072300	7	0			1	30	7.5YR3/2	LMS		10	hard stone					-59	-59	I		4	D	
						2	60	7.5YR5/6	MS	M	10	hard stone				N							Stop for stone
80	TL6840072300	8	0		plough	1	30	7.5YR3/2	LMS		10	hard stone					-55	-51	I		4	D	
						2	40	7.5YR4/4	LMS	M	10	hard stone				N							
						3	70	7.5YR5/6	MS	M	0					N							Stop for stone
81	TL6850072300	9	0		plough	1	30	7.5YR3/2	LMS		15	hard stone	10%>2cm				-45	-44	I		3b	D	
						2	55	7.5YR5/6	MS	M	0					N							stop for stone
82	TL6860072300	8	0		plough	1	30	7.5YR3/2	LMS		15	flint	10%>2cm				-45	-44	I		3b	D	
						2	55	7.5YR5/6	LMS	M	15	flint				N							stop for stone
89	TL6860072200	10	0		conservation buffer	1	30	7.5YR3/2	MS		15	hard stone	10%>2cm				-63	-63	I		3b	D	
						2	80	7.5YR5/4	MS	M	15	hard stone				N							stop for stone
97	TL6900072100	7	0		gamecover	1	30	7.5YR3/2	MS		15	gravel hard					-75	-71	I		4	D	stop for stone

Agricultural Land Classification (ALC) Survey – Sunnica West, additional land

Label for soil sample data locations plotted: SW

Table 4 - Soil data for sample points in Sunnica West, additional land

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
1	TL6540067700	23m	1	SE	past	1	20	7.5YR3/2	LMS		5	hard stone					-41	-37	I		3b	D	
						2	45	7.5YR4/4	LMS	M	5	hard stone				N							
						3	70	7.5YR7/1	LMS	M	5	chalk				N							stop for stone
2	TL6550067700	25	1	SE	past	1	20	7.5YR3/2	LMS		5	hard stone					-54	-50	I		4	D	
						2	40	7.5YR4/4	LMS	M	5	hard stone				N							stop for stone
3	TL6530067600	23	2	SE	past	1	20	7.5YR3/2	LMS		5	hard stone					-54	-50	I		4	D	
						2	40	7.5YR4/4	LMS	M	5	hard stone				N							stop for stone
4	TL6540067600	21	1	SE	past	1	20	7.5YR3/2	LMS		5	hard stone					-51	-47	I		4	D	
						2	35	7.5YR4/4	LMS	m	5	hard stone				N							
						3	40	7.5YR7/1	MS	M	5	chalk				N							stop for stone
5	TL6550067600	23	0		past	1	20	7.5YR3/2	LMS		5	hard stone					-45	-51	I		3b	D	
						2	40	7.5YR4/4	LMS	M	5	hard stone				N							
						3	75	7.5YR6/4	MS	M	5	hard stone				N							stop for stone
6	TL6500067500	32	0		past	1	20	7.5YR3/2	LMS		10	hard stone					-58	-54	I		4	D	
						2	35	7.5YR4/4	LMS	M	30	chalk				N							stop for stone
8	TL6520067500	28	4	SE	past	1	20	7.5YR3/2	LMS		10	hard stone					-55	-51	I		4	D	
						2	50	7.5YR4/4	LMS	M	20	hard stone				N							stop for stone
9	TL6530067500	19	2	SE	past	1	20	7.5YR3/2	LMS		5	hard stone					-34	-38	I		3b	D	
						2	45	7.5YR4/4	LMS	M	5	hard stone				N							
						3	60	7.5YR7/1	LMS	M	5	chalk				N							stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
10	TL6540067500	18	2	SE	past	1	20	7.5YR3/2	LMS		5	hard stone					-34	-38	I		3b	D	
						2	45	7.5YR4/4	LMS	M	5	hard stone				N							
						3	60	7.5YR7/1	LMS	M	5	chalk				N							stop for stone
11	TL6490067400	32	1	SE	past	1	20	7.5YR3/2	LMS		5	hard stone					-45	-41	I		3b	D	
						2	40	7.5YR4/4	LMS	M	5	hard stone				N							
						3	50	7.5YR7/1	LMS	M	50	chalk				N							stop for stone
12	TL6500067400	28	3	SE	past	1	20	7.5YR3/2	LMS		5	hard stone					-45	-41	I		3b	D	
						2	40	7.5YR4/4	LMS	M	5	hard stone				N							
						3	50	7.5YR7/1	LMS	M	50	chalk				N							stop for stone
14	TL6520067400	19	2	SE	past	1	20	7.5YR3/2	MSL		5	hard stone					-46	-42	I		3b	D	
						2	50	7.5YR4/4	MSL	M	5	hard stone				N							stop for stone
15	TL6500067300	27	4	SE	past	1	20	7.5YR3/2	MSL		5	hard stone					-38	-40	I		3b	D	
						2	60	7.5YR4/4	LMS	M	5	hard stone				N							stop for stone
16	TL6510067300	20	2	SE	past	1	20	7.5YR3/2	LMS		5	hard stone					-45	-41	I		3b	D	
						2	40	7.5YR4/4	LMS	M	5	hard stone				N							
						3	50	7.5YR7/1	LMS	M	50	chalk				N							stop for stone

Agricultural Land Classification (ALC) Survey – Sunnica, Chippenham Park

03/11/15 – Fair

04/11/15 – Rain

05/11/15 – Fair after rain

06/11/15 – Overcast after rain

Label for soil sample data locations plotted: CP

Table 5 - Soil data for sample points in Chippenham Park

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
1	TL6670067900		1	NE		1	30	10YR4/2	MSL		15	flint and chalk					-30	-26	I		3b	D	
						2	45	10YR4/4	MSL	M	15	flint and chalk				N							stop for chalk
2	TL6680067900		1	NE		1	30	10YR4/2	MSL		15	flint and chalk					-26	-22	I		3b	D	
						2	40	10YR4/4	MSL	M	15	flint and chalk				N							
						3	50	10YR6/6	MSL	M	30	chalk				N							stop for chalk
3	TL6690067900		1	NE		1	30	10YR4/2	MSL		15	flint and chalk					-19	-24	I		3a	D	
						2	45	10YR4/4	MSL	M	15	flint and chalk				N							
						3	60	10YR6/6	MSL	M	50	chalk				N							stop for chalk
4	TL6660067800		1	NE		1	30	10YR4/2	MSL		12	flint					-21	-17	I		3a / 3b	D	
						2	50	10YR4/4	MSL	M	12	flint				N							stop for chalk
5	TL6670067800		2	NE		1	30	10YR4/2	MSL		12	flint					-21	-17	I		3a / 3b	D	
						2	50	10YR4/4	MSL	M	12	flint				N							stop for stone
6	TL6680067800		2	NE	seedbed	1	30	10YR4/3	MSL		12	flint					-28	-24	I		3b	D	
						2	40	10YR4/4	MSL	M	12	flint				N							
						3	45	10YR6/6	MSL	M	20	chalk				N							stop for chalk
7	TL6650067700		0		seedbed	1	30	10YR4/3	MSL		12	flint					-28	-24	I		3b	D	
						2	40	10YR4/4	MSL	M	12	flint				N							
						3	45	10YR6/6	MSL	M	20	chalk				N							Stop for chalk
7a	TL6690067800		0			1	30	10YR4/2	MSL		15	flint and chalk					-31	-27	I		3b	D	
						2	45	10YR4/4	MSL	M	15	flint and chalk				N							
						3	60	10YR6/6	MSL	M	30	chalk				N							stop for chalk
8	TL6660067700		0		seedbed	1	30	10YR4/2	MSL		12	flint					-38	-34	I		3b	D	

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						2	40	10YR4/3	MSL	M	12	flint				N							stop for stone
8a	TL6700067800		0		cultivated	1	30	10YR4/2	MSL		12	flint and chalk					-28	-24	I		3b	D	
						2	40	10YR4/4	MSL	M	12	flint and chalk				N							
						3	45	10YR6/6	MSL	M	50	chalk				N							stop for chalk
10	TL6680067700		0		seedbed	1	30	10YR4/2	LMS		10	hard stone					-49	-45	I		3b	D	
						2	50	10YR4/4	LMS	M	10	hard stone				N							stop for chalk
11	TL6690067700		0		cultivated	1	30	10YR4/2	MSL		8	flint					6	-16	I		3a	D	
						2	50	10YR4/4	MSL	M	8	flint				N							
						3	95	10YR6/8	SZL	M	20	chalk				N							stop for chalk
12	TL6700067700		0		cultivated	1	30	10YR4/2	MSL		20	flint					-15	-22	I		3a	D	
						2	40	10YR4/4	MSL	M	20	flint				N							
						3	60	10YR6/6	MSL	M	20	chalk				N							stop for chalk
13	TL6710067700		0		cultivated	1	30	7.5YR3/2	MSL		12	flint					-18	-23	I		3a	d	
						2	50	5YR4/4	HCL	M	12	flint				N							
						3	65	7.5YR6/6	MSL	M	50	chalk				N							stop for chalk
17	TL6670067600		0		seedbed	1	30	10YR4/3	LMS		12	flint					-52	-48	I		4	D	
						2	40	10YR5/4	LMS	M	12	flint				N							
						3	50	7.5YR5/4	MS	M	2	flint				N							stop for stone
18	TL6680067600		0		seedbed	1	45		LMS								-52	-48	I		4	D	stop for stone
19	TL6690067600		0		seedbed	1	30	10YR4/3	LMS		12	flint					-38	-42	I		3b	D	
						2	45	10YR5/3	LMS	M	12	flint				N							
						3	60	10YR5/6	LMS	M	20	chalk				N							stop for chalk
20	TL6700067600		0		seedbed	1	30	7.5YR4/3	LMS		20	flint and chalk					-61	-57	I		4	D	
						2	35	7.5yR5/4	LMS	M	20	flint and chalk				N							stop for chalk
21	TL6710067600		0		beet	1	30	7.5YR4/3	LMS		12	flint					-46	-42	I		3b	D	
						2	50	7.5YR5/4	LMS	M	12	flint				N							stop for stone
24	TL6650067500		0		sugar beet	1	25	10YR3/2	MSL		8	flint					-18	-14	I		3a	D	
						2	50	10YR4/4	MSL	M	8	flint				N							stop for stone
26	TL6670067500		0		seedbed	1	30	7.5YR4/3	LMS		25	hard stone	10%>6cm				-62	-58	I		4	D	
						2	45	7.5YR5/4	LMS	M	20	hard stone				N							stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
27	TL66800674000		0		seedbed	1	30	7.5YR4/3	LMS		12	flint					-46	-42	I		3b	D	
						2	50	7.5YR5/4	LMS	M	12	flint				N							stop for stone
28	TL6690067500		0		seedbed	1	30	7.5YR4/3	LMS		12	flint					-62	-58	I		4	D	
						2	60	7.5YR5/4	LMS	M	12	flint				N							stop for chalk
29	TL6700067505		0		seedbed	1	30	7.5YR4/3	LMS		10	flint					-57	-53	I		4	D	
						2	50	7.5YR5/4	LMS	M	10	flint				N							
						3	60	7.5YR4/4	MS	M	0					N							stop for stone
34	TL6640067400		0		sugar beet	1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
35	TL6650067400					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
36	TL6660067400					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
37	TL6640067400					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
38	TL6680067400		0		seedbed	1	30	7.5YR4/3	LMS		15	flint					-46	-42	I		3b	D	
						2	45	7.5YR5/4	LMS	M	15	Flint				N							
						3	60	7.5YR6/6	MSL	M	20	chalk				N							stop for chalk
40	TL6700067400		0		parsnip	1	30	7.5YR4/3	LMS		5	hard stone					-40	-40	I		3b	D	
						2	50	7.5YR4/4	LMS	M	5	hard stone				N							
						3	55	7.5YR6/6	LMS	M	50	chalk				N							Stop for chalk
42	TL6720067400		0		parsnip	1	30	7.5YR4/3	LMS		5	hard stone					-31	-39	I		3b	D	
						2	60	7.5YR5/4	LMS	M	5	hard stone				N							
						3	65	7.5YR6/6	LMS	M	50	chalk				N							Stop for chalk
43	TL6730067400		0		parsnip	1	30	7.5YR4/3	LMS		5	hard stone					-31	-49	I		3b	D	
						2	40	7.5YR5/4	LMS	m	5	hard stone											
						3	75	7.5YR6/4	MS	M	0					N							
						4	95	7.5YR6/4	HCL	M	0					N							stop for chalk
44	TL6530067300		0		stubble	1	25	10YR4/2	MSL		8	flint					-12	-18	I		3a	D	
						2	40	MSL	MSL	M	8	flint				N							

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						3	80	10YR4/4	SCL	M	8	flint				N							stop for stone
45	TL6540067300		0		stubble	1	25	10YR4/2	MSL		8	flint					-36	-32	I		3b	D	
						2	45	10YR4/4	MSL	M	8	flint				N							
						3	70	10YR6/6	LMS	M	20	chalk				N							stop for chalk
46	TL6550067300		0		stubble	1	25	10YR4/2	MSL		8	hard stone					-1	-13	I		3a	D	
						2	85	10YR4/4	MSL	M	8	chalk				N							stop for chalk
49	TL6631067300		0			1	25	10YR3/2	MSL		8	flint					-24	-20	I		3b	D	
						2	50	10YR4/4	MSL	M	8	flint				N							stop for stone
50	TL6640067300					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
51	TL6650067300					1	25	10YR3/2	MSL		8	flint					-24	-20	I		3b	D	
						2	50	10YR4/4	MSL	M	8	flint				N							stop for stone
52	TL6660067300					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
53	TL6670067300					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
55	TL6690067300		0		parsnip	1	30	7.5YR4/3	MSL		12	flint					-24	-20	I		3b	D	
						2	40	7.5YR5/4	MSL	M	12	flint				N							
						3	50	10YR5/6	MSL	M	20	chalk				N							stop for chalk
56	TL6700067300		0		parsnip	1	25	7.5YR4/3	MSL		20	flint					-63	-59	I		4	D	stop for stone
57	TL6710067300		0		parsnip	1	30	7.5YR4/3	LMS		12	flint					-53	-53	I		4	D	
						2	40	7.5YR5/4	LMS	M	12	flint											
						3	80	7.5YR5/6	MS	M	5	flint				N							stop for stone
58	TL6720067300		0		parsnip	1	30	7.5YR4/3	MSL		20	flint					-56	-52	I		4	D	stop for stone
59	TL6730067300		0		pulse	1	30	7.5YR4/3	LMS		12	flint					-55	-51	I		4	D	
						2	45	7.5YR5/4	LMS	M	12	flint				N							stop for chalk
60	TL6740067300		0		pulse	1	30	7.5YR4/3	LMS		12	flint					-55	-51	I		4	D	
						2	45	7.5YR5/4	LMS	M	12	flint				N							stop for chalk

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
61	TL6530067200		0		stubble	1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
62	TL6540067200		0			1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
63	TL6550067200		0			1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
64	TL6560067200		0		stubble	1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
67	TL6630067200					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
68	TL6640067200					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
69	TL6650067200					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
70	TL6660067200					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
71	TL6670067200		0		sugar beet	1	25	7.5YR4/2	LMS		15	flint					-61	-57	I		4	D	
						2	40	7.5YR4/4	LMS	M	15	flint				N							stop for stone
76	TL6720067200		0		pulse	1	30	7.5YR4/3	LMS		12	flint					-55	-51	I		4	D	
						2	45	7.5YR5/4	LMS	M	12	flint				N							stop for chalk
77	TL6730067200		0		pulse	1	30	7.5YR4/3	LMS		12	flint					-55	-51	I		4	D	
						2	45	7.5YR5/4	LMS	M	12	flint				N							stop for chalk
78	TL6740067200		0		pulse	1	30	7.5YR4/3	LMS		12	flint					-55	-51	I		4	D	
						2	45	7.5YR5/4	LMS	M	12	flint				N							stop for chalk
79	TL6750067200		0		pulse	1	30	7.5YR4/3	LMS		12	flint					-55	-51	I		4	D	
						2	45	7.5YR5/4	LMS	M	12	flint				N							stop for chalk
81	TL6520067100		0		stubble	1	25	10YR4/2	MSL		8	flint					9	-15	I		3a	D	
						2	60	10YR4/4	MSL	M	8	flint				N							stop for chalk

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
82	TL6530067100		0			1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
83	TL6540067100		0			1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
84	TL6550067100					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
85	TL6710067200		0		parsnip	1	30	7.5YR4/3	LMS		8	flint					-49	-45	I		3b	D	
						2	40	7.5YR5/4	LMS	M	12	flint				N							
						3	45	10YR5/6	LMS	M	20	chalk				N							stop for chalk
88	TL6630067100					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
89	TL6640067100					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
90	TL6650067100					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
91	TL6660067100					1	25	7.5YR4/2	LMS		20	flint	15%>2cm				-30	-26	I		3b	D	
						2	40	7.5YR5/3	MSL	M	20	flint				N							stop for stone
97	TL6720067100		0		pulse	1	30	7.5YR4/3	LMS		12	flint					-42	-42	I		3b	D	
						2	50	7.5YR5/4	LMS	M	12	flint				n							
						3	55	10YR5/6	MSL	M	20	chalk				N							stop for chalk
98	TL6730067100		0		pulse	1	30	7.5YR4/3	LMS		5	flint					-45	-41	I		3b	D	
						2	50	7.5YR4/4	LMS	M	5	flint				N							stop for stone
99	TL6740067100		0		pulse	1	30	7.5YR4/3	LMS		5	flint					-50	-46	I		3b / 4	D	
						2	45	7.5YR4/4	LMS	M	5	flint				N							stop for chalk
100	TL6750067100		0		pulse	1	30	7.5YR4/3	LMS		5	flint					-37	-39	I		3b	D	
						2	60	7.5YR4/4	LMS	M	5	flint				N							stop for stone
102	TL6550067000					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
103	TL6560067000					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	

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						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
104	TL6570067000					1	25	7.5YR3/2	MSL		10	hard stone											
						2	55	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
105	TL6580067000					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
107	TL6600067000		0		W cereal	1	25	10YR3/2	MSL		10	flint					-18	-18	I		3a	D	
						2	50	10YR4/4	MSL	M	10	flint				N							stop for stone
111	TL6640067000					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
112	TL6650067000					1	25	10YR3/2	MSL		8	flint					-24	-20	I		3b	D	
						2	50	10YR4/4	MSL	M	8	flint				N							stop for stone
114	TL6670067000					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
115	TL6680067000					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
116	TL6690067000		0		w cereal	1	25	7.5YR4/3	LMS		10	flint					-60	-56	I		4	D	
						2	40	7.5YR5/4	LMS	M	10	flint				N							Stop for stone
117	TL6700067000		0		w cereal	1	25	7.5YR4/3	LMS		10	flint					-60	-56	I		4	D	
						2	40	7.5YR5/4	LMS	M	10	flint				N							Stop for stone
118	TL6710067000		0		w cereal	1	25	7.5YR4/3	LMS		10	flint					-60	-56	I		4	D	
						2	40	7.5YR5/4	LMS	M	10	flint				N							Stop for stone
119	TL6720067000		0		pulse	1	30	7.5YR3/2	LMS		12	hard					-65	-61	I		4	D	
						2	50	7.5YR5/4	MS	M	12	hard				N							stop for stone
120	TL6730067000		0		pulse	1	30	7.5YR4/3	LMS		12	hard					-59	-57	I		4	D	
						2	55	7.5YR5/4	MS	M	12	hard				N							
						3	75	10YR6/6	MS	M	20	soft gravel - chalk				N							stop for stone
121	TL6740067000		0		pulse	1	35	10YR4/2	MSL		12	hard stone					-16	-17	I		3a	D	slight hollow
						2	55	10YR6/4	MSL	M	20	chalk				N							stop for stone

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123	TL6540066900					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
124	TL6550066900					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
125	TL6560066900					1	25	7.5YR3/2	MSL		10	hard stone					-42	-38	I		3b	D	
						2	35	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
126	TL6570066900					1	25	7.5YR3/2	MSL		10	hard stone					-26	-26	I		3b	D	
						2	55	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
127	TL6580066900					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
128	TL6590066900					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
129	TL6600066900					1	40		MSL		10	hard stone					-34	-30	I		3b	D	stop for chalk
132	TL6630066900					1	25	7.5YR4/3	MZCL		15	chalk					-26	-22	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
133	TL6640066900					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
135	TL6660066900					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
136	TL6670066900					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
137	TL6680066900					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
138	6690066900	0		w cereal		1	25	7.5YR3/2	LMS		10	flint					-22	-41	I		3b	D	
						2	50	7.5YR4/4	LMS	M	10	flint				N							
						3	80	7..5YR5/4	LMS	M	2	flint				N							stop for stone
139	TL6700066900	0		w cereal		1	25	7.5YR4/3	LMS		10	flint					-60	-56	I		4	D	
						2	40	7.5YR5/4	LMS	M	10	flint				N							Stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
140	TL6710066900					1	25	7.5YR4/3	LMS		10	flint					-60	-56	I		4	D	
						2	40	7.5YR5/4	LMS	M	10	flint				N							Stop for stone
141	TL6720066900					1	25	7.5YR4/3	LMS		10	flint					-60	-56	I		4	D	
						2	40	7.5YR5/4	LMS	M	10	flint				N							Stop for stone
143	TL6740066900		0		pulse	1	35	7.5YR3/2	LMS		12	hard stone					-63	-59	I		4	D	stop for stone
145	TL6550066800					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
146	TL6560066800					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	edge of depression
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
147	TL6570066800					1	25	10YR3/2	MSL		25	flint	>15%>6cm				-67	-63	I		4	D	disturbed? Stop forstone
148	TL6580066800					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
149	TL6590066800					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
150	TL6600066800		0			1	25	10YR3/2	MSL		12	flint					-13	-20	I		3a	D	
						2	80	10YR4/4	MSL	M	10	chalk				N							stop for chalk
152	TL6620066800		0		stubble	1	25	7.5YR4/3	MZCL		15	chalk					4	-16	I		3a	D	
						2	50	7.5YR4/4	MZCL	M	15	chalk				N							
						3	90	7.5YR6/6	MZCL	M	20	chalk				N							stop for chalk
153	TL6630066800		0			1	25	10YR4/3	MZCL		15	hard stone					-12	-17	I		3a	D	
						2	50	10YR4/3	MZCL	M	15	hard stone				N							
						3	60	10YR6/6	MZCL	M	30	chalk				N							stop for chalk
154	TL6640066800		0		stubble	1	25	10YR4/2	MZCL		12	flint and chalk					-46	-42	I		3b	D	
						2	30	10YR4/3	MZCL	M	12	flint and chalk				N							stop for chalk
156	TL6650066800					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
157	TL6660066800					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
158	TL6670066800					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
159	TL66800668000					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
160	TL6690066800					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
161	TL6700066800					1	25	7.5YR4/3	LMS		10	flint					-60	-56	I		4	D	
						2	40	7.5YR5/4	LMS	M	10	flint				N							Stop for stone
162	TL6710066800					1	25	7.5YR4/3	LMS		10	flint					-60	-56	I		4	D	
						2	40	7.5YR5/4	LMS	M	10	flint				N							Stop for stone
163	TL6720066800					1	25	7.5YR4/3	LMS		10	flint					-60	-56	I		4	D	
						2	40	7.5YR5/4	LMS	M	10	flint				N							Stop for stone
167	TL6570066700					1	25	7.5YR3/2	MSL		20	flint					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	20	flint				N							stop for chalk
168	TL6580066700					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
169	TL6590066700					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
170	TL6600066700					1	40		MSL		10	hard stone					-36	-32	I		3b	D	stop for chalk
172	TL6620066700	0		stubble		1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
173	TL6630066700					1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
176	TL6660066700					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
177	TL6660066700					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
178	TL6680066700					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
179	TL6690066700					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
181	TL6570066600					1	25	10YR5/3	MSL		12	hard stone					-23	-27	I		3b	D	
						2	60	10YR5/4	MSL	M	12	hard stone				N							stop for chalk
182	TL6580066600					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
183	TL6590066600					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
184	TL6600066600					1	25	10YR3/2	MSL		12	flint					6	-20	I		3a	D	
						2	80	10YR4/4	MSL	M	10	chalk				N							stop for chalk
186	TL6620066600	0		stubble		1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
187	TL6630066500	0				1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
188	TL6640066500	0				1	30	5YR4/2	MZCL		10	hard stone					-32	-28	I		3b	D	low dome top
						2	40	5YR4/4	MZCL	M	10	hard stone				N							stop for stone
189	TL6650066600	0				1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
190	TL6660066600	0				1	25	7.5YR3/2	MZCL		8	hard stone					11	-14	I		3a	D	
						2	60	7.5YR4/3	MZCL	M	8	hard stone				N							stop for cahlk
192	TL6680066600					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
195	TL6580066500	0				1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
196	TL6590066500					1	25		MSL								-56	-52	I		4	D	stop for chalk
197	TL6600066500					1	40		MSL		10	hard stone					-36	-32	I		3b	D	stop for chalk
199	TL6620066500		0		stubble	1	25	7.5YR4/3	MZCL		15	chalk					3	-12	I		3a	D	
						2	50	7.5YR4/4	MZCL	M	15	chalk				N							
						3	90	7.5YR6/6	MZCL	M	20	chalk				N							stop for chalk
200	TL6630066500		0			1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
201	TL6640066500		0			1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
202	TL6650066500		0			1	25	10YR4/2	MZCL		12	flint and chalk					-46	-42	I		3b	D	
						2	30	10YR4/3	MZCL	M	12	flint and chalk				N							stop for chalk
203	TL6660066500		0		stubble	1	25	7.5YR4/2	MSL		10	flint					-56	-52	I		4	D	stop for stone
205	TL6680066500					1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
206	TL6580066400					1	25	10YR5/3	MZCL		20	flint	15%>2cm				-43	-39	I		3b	D	
						2	40	10YR5/6	MZCL	M	20	flint				N							stop for chalk
207	TL6590066400					1	25		MSL								-56	-52	I		4	D	stop for chalk
209	TL6610066400		0			1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
210	TL662006640		0			1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
211	TL6630066400		0			1	25	10YR4/3	MZCL		15	flint and chalk					-13	-18	I		3a	D	
						2	40	10YR4/4	MZCL	M	15	flint and chalk				N							
						3	60	10yR5/6	MZCL	M	15	chalk				N							stop for chalk

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
212	TL6640066400					1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
213	TL66500664000		0			1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
214	TL6660066400		0		stubble	1	25	7.5YR4/2	MSL		12	flint					5	-17	I		3a	D	
						2	60	7.5YR4/4	MSL	M	12	flint				N							
						3	75	7.5YR6/6	MSL	M	30	chalk				N							stop for chalk
215	TL6590066300		0		W cerial	1	25	7.5YR3/2	MSL		10	hard stone					-30	-26	I		3b	D	
						2	45	7.5YR4/3	MSL	M	10	hard stone				N							stop for chalk
217	TL6610066300		0		stubble	1	25		MZCL								-52	-48	I		4	D	stop for chalk
218	TL6620066300		0			1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
219	TL6630066300		0			1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
220	TL6640066300		0			1	25	10YR4/2	MZCL		12	flint and chalk					-46	-42	I		3b	D	
						2	30	10YR4/3	MZCL	M	12	flint and chalk				N							stop for chalk
222	TL6610066200		0			1	20																stop for chalk at 20
224	TL66200662000		0			1	25	7.5YR4/3	MZCL		15	chalk					-22	-18	I		3b	D	
						2	30	7.5YR4/4	MZCL	M	15	chalk				N							
						3	45	7.5YR7/4	MZCL	M	20	chalk				N							stop for chalk
225	TL6612266100		0		stubble	1	25		MZCL								-52	-48	I		4	D	stop for chalk

Pit at 135 - hard chalk at 45cm depth

30 to 45, marbled soft chalk (20%) with MSL, no SP, no gley, no root penetration below 45cm

Agricultural Land Classification (ALC) Survey – Chippenham Park, Additional Area

15/12/15 – Rain

Label for soil sample data locations plotted: CPa

Table 6 - Soil data for sample points in Chippenham Park, Additional Area

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
1	TL6760067200		0		cereal	1	30	7.5YR3/2	LMS		8	flint					-18	-40	I		3b	D	
						2	65	7.5YR5/4	LMS	M	2	flint				N							
						3	110	7.5YR5/2	MS	M	0					N							
						4	120	7.5YR6/2	MS	M	20	chalk				N							
2	TL6770067300		0				50		LMS		10	flint					-49	-45	I		3b / 4	D	stop for stone
3	TL6760067300		0			1	30	7.5YR3/2	LMS		12	flint					-46	-42	I		3b	D	
						2	40	7.5YR5/4	LMS	M	12	flint				N							
						3	50	7.5YR6/2	MSL	M	20	chalk				N							stop for chalk
4	TL6750067300					1	30	7.5YR3/2	LMS		12	flint					-33	-38	I		3b	D	
						2	40	7.5YR5/4	LMS	M	12	flint				N							
						3	60	7.5YR6/2	MSL	M	20	chalk				N							stop for chalk
5	TL6740067400						50		LMS		10	flint					-49	-45	I		3b / 4	D	stop for stone
6	TL6750067400						40		LMS		10	flint					-56	-52	I		4	D	stop for stone
7	TL6760067400					1	30	7.5YR3/2	LMS		10	flint											
						2	50	7.5YR5/4	LMS	M	8	flint				N							
						3	60	7.5YR5/4	MCL	M	8	flint				N							stop for stone
8	TL6770067400						50		LMS		10	flint					-49	-45	I		3b / 4	D	stop for stone
9	TL6780067400						70		LMS		10	flint											stop for stone
10	TL6780067500						50		LMS		10	flint					-49	-45	I		3b / 4	D	stop for stone
11	TL6770067500						50		LMS		10	flint					-49	-45	I		3b / 4	D	stop for stone
12	TL6760067500						35		LMS		10	flint					-60	-56	I		4	D	stop for stone
13	TL6750067500					1	30	7.5YR3/2	MSL		10	flint and chalk					9	-22	II	calc	3a	D	
						2	55	7.5YR4/4	HCL	M	2	flint				N							
						3	70	7.5YR4/4	HCL	P	2	flint and chalk		5/1 + 5/4	Y	Y							

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						4	120	7.5YR6/2	MCL	M	20	chalk				N							
14	TL6760067600						50		LMS		10	flint					-49	-45	I		3b / 4	D	stop for stone
15	TL6770067600						50		LMS		10	flint					-49	-45	I		3b / 4	D	stop for stone
16	TL6770067700						60		LMS		10	flint					-35	-37	I		3b	D	stop for stone
17	TL6730067500		0		cereal	1	30	7.5YR3/2	MSL		8	flint					-13	-38	I		3b	D	
						2	120	7.5YR6/4	LMS	M	2	hard stone				N							
18	TL6740067600					1	30	7.5YR3/2	MSL		10	flint					-26	-22	I		3b	D	
						2	40	7.5YR4/4	MSL	M	10	flint				N							
						3	60	7.5YR6.6	MSL	M	20	chalk				N							stop for chalk
19	TL6730067600					1	30	7.5YR3/2	MSL		10	flint					-26	-22	I		3b	D	
						2	40	7.5YR4/4	MSL	M	10	flint				N							
						3	50	7.5YR6.6	MSL	M	20	chalk				N							stop for chalk
20	TL6720067700						40		MSL		10	hard stone					-38	-34	I		3b	D	stop for stone
21	TL6730067700					1	30	7.5YR3/2	MSL		10	flint					-26	-22	I		3b	D	
						2	40	7.5YR4/4	MSL	M	10	flint				N							
						3	60	7.5YR6.6	MSL	M	20	chalk				N							stop for chalk
22	TL6740067700					1	30	7.5YR3/2	MSL		8	hard stone					-18	-22	I		3a / 3b	D	
						2	60	7.5YR4/4	MSL	M	8	hard stone				N							stop for stone
23	TL6750067700					1	30	7.5YR3/2	MSL		8	hard stone					-18	-22	I		3a / 3b	D	
						2	60	7.5YR4/4	MSL	M	8	hard stone				N							stop for stone
24	TL6760067800					1	30	7.5YR3/2	MSL		8	hard stone					-18	-22	I		3a / 3b	D	
						2	60	7.5YR4/4	MSL	M	8	hard stone				N							stop for stone
25	TL6750067800					1	30	7.5YR3/2	MSL		8	flint					-42	-38	I		3b	D	
						2	40	7.5YR5/4	MSL	M	15	flint				N							stop for chalk
26	TL6740067800					1	30	7.5YR3/2	MSL		8	flint					-42	-38	I		3b	D	
						2	40	7.5YR5/4	MSL	M	15	flint				N							stop for chalk
27	TL6730067800					1	30	7.5YR3/2	MSL		8	flint					-4	-19	I		3a	D	
						2	40	7.5YR4/4	MSL	M	8	flint											

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
						3	70	7.5YR5/6	MSL	M	15	chalk				N							stop for chalk
28	TL6740067900					1	30	7.5YR3/2	MSL		10	flint					-6	-30	I		3a / 3b	D	
						2	50	7.5YR5/4	MSL	M	10	flint				N							
						3	120	7.5YR6/6	HZCL	P	5	hard stone		6/1 + 6/8		Y							
29	TL6750068000					1	30	7.5YR3/2	MSL		10	flint					-6	-30	I		3a / 3b	D	
						2	50	7.5YR5/4	MSL	M	10	flint				N							
						3	120	7.5YR6/6	HZCL	P	5	hard stone		6/1 + 6/8		Y							
30	TL6750068000					1	30	7.5YR3/2	MSL		8	flint					-18	-22	I		3a / 3b	D	
						2	60	7.5YR4/4	MSL	M	8	flint		7.5YR6/6		N							stop for stone
31	TL6720067800		0			1	25		MSL		30	flint	15%>2cm				-73	-69	I		4	D	stop for stone
32	TL6710067900		1	NW			35		MSL		10	hard stone					-45	-41	I		4	D	stop for stone
33	TL6720067900		1	NW		1	30	7.5YR3/2	MSL		10	flint					-24	-20	I		3b	D	
						2	50	7.5YR6/6	MSL	M	10	chalk				N							stop for chalk
34	TL6730067900					1	30	7.5YR3/2	MSL		8	hard stone					-18	-22	I		3a / 3b	D	
						2	80	7.5YR4/4	MSL	M	5	hard stone				N							stop for stone
35	TL6740068000					1	30	7.5YR3/2	MSL		8	hard stone					9	-22	II		3a	D	
						2	50	7.5YR4/4	MSL	M	8	hard stone				N							
						3	65	7.5YR4/4	MCL	M	0			5/6 + 5/1	Y	N							
						4	120	7.5YR5/1	HCL	P	0			7.5YR5/6	Y	Y							
36	TL6730068000						45		MSL		10	flint					-35	-31	I		3b	D	stop for stone
37	TL6720068000						45		MSL		10	flint					-35	-31	I		3b	D	stop for chalk
38	TL6710068000		1	NW			45		MSL		10	flint					-35	-31	I		3b	D	stop for stone
39	TL6700068000		1	NW		1	30	7.5YR3/2	MSL		8	hard stone					0	-18	I		3a	D	
						2	75	7.5YR6/4	MSL	M	5	hard stone				N							stop for stone
40	TL6700068100		0			1	30	7.5YR3/2	MSL		8	hard stone					0	-18	I		3a	D	
						2	75	7.5YR6/4	MSL	M	5	hard stone				N							stop for stone
41	TL6710068100						40		MSL								-38	-34	I		3b	D	stop for chalk

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
42	TL6720068100						40		MSL								-38	-34	I		3b	D	stop for chalk
43	TL6730068100						25		MSL								-59	-55	I		4	D	stop for stone
44	TL6740068100		1	NW		1	30	7.5YR3/2	MSL		10	flint					-8	-22	I		3a	D	
						2	60		MSL	M	10	Flint				N							
						3	70	7.5YR5/4	MCL	M	5	hard stone				N							
						4	90	7.5YR6/6	MSL	M	20	hard stone				N							stop for stone
45	TL6740068200						40		MSL								-38	-34	I		3b	D	stop for chalk
46	TL6730068200						35		MSL								-45	-41	I		3b	D	stop for chalk
48	TL6710068200					1	30	7.5YR3/2	MSL		10	hard stone					-10	-22	I		3a	D	
						2	70	7.5YR5/6	MSL	M	10	hard stone				N							
49	TL6720068300		1	N			25	10YR4/2	MSL		10	chalk					-51	-47	I		4	D	stop for chalk
50	TL6730068300		1	N			45		MSL								-36	-32	I		3b	D	stop for chalk
51	TL6530067100		1	SE	pasture	1	30	10YR4/2	MSL		5	flint					-35	-31	I		3b	D	
						2	40	10YR6/4	MSL	M	25	chalk				N							stop for chalk
52	TL6520067200		1	SE	pasture	1	30	10YR4/2	MSL		5	flint and chalk					-10	-16	I		3a	D	
						2	80	10YR4/4	MSL	M	10	chalk				N							stop for chalk
53	TL6530067200		1	SE	pasture	1	30	10YR4/2	MSL		5	flint and chalk					-23	-19	I		3b	D	
						2	40	10YR4/4	MSL	M	10	chalk				N							
						3	50	10YR6/4	MSL	M	25	chalk				N							stop for chalk
54	TL6540067200		1	SE	pasture	1	30	10YR4/2	MSL		5	chalk and flint					-13	-20	I		3a	D	
						2	60	10YR4/4	MSL	M	10	chalk and flint				N							stop for chalk
55	TL6540067300		2	SE	pasture	1	30	10YR4/2	MSL		5	flint and chalk					-30	-26	I		3b	D	
						2	45	10YR6/4	MSL	M	25	chalk				N							stop for chalk
56	TL6530067300		2	SE	pasture	1	30	10YR4/2	MSL		5	flint and chalk					-10	-16	I		3a	D	
						2	80	10YR4/4	MSL	M	10	chalk				N							stop for chalk
57	TL6520067300		2	SE	pasture	1	30	10YR4/2	MSL		5	flint and chalk					-10	-16	I		3a	D	
						2	80	10YR4/4	MSL	M	10	chalk				N							stop for chalk

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
58	TL6560067600		0	hilltop	pasture	1	30	black	LMS		5	hard stone					-50	-46	I		3b / 4	D	
						2	45	10YR5/4	LMS	M	5	hard stone				N							stop for stone
59	TL6570067500		3	SE	pasture	1	30	10YR4/2	LMS		2	flint					-22	-43	I		3b	D	
						2	50	10YR4/4	LMS	M	2	flint				N							
						3	120	10YR6/6	MS	M	0					n							
60	TL6560067500		2	SE	pasture	1	30	black	LMS		5	hard stone					-50	-46	I		3b / 4	D	
						2	45	10YR5/4	LMS	M	5	hard stone				N							stop for stone
61	TL6550067500		2	SE	pasture		20		LMS		15	hard stone					-80	-76	I			4 D	stop for stone
62	tL6540067400		1	SE	pasture	1	30	10YR4/2	MSL		5	flint and chalk					-10	-16	I		3a	D	
						2	80	10YR4/4	MSL	M	10	chalk				N							stop for chalk
63	TL6550067400		1	SE	pasture	1	30	10YR3/2	MSL		5	chalk and flint					2	-15	I		3a	D	
						2	80	10YR4/4	MSL	M	5	chalk				N							
						3	90	10YR6/4	MSL	M	20	chalk				N							stop for chalk
64	TL6540067400		2	SE	pasture		30		LMS								-66	-62	I			4 D	stop for chalk
65	TL6550067300		1	SE	pasture	1	30	10YR4/2	MSL		5	flint					-35	-31	I		3b	D	
						2	40	10YR6/4	MSL	M	25	chalk				N							stop for chalk

Agricultural Land Classification (ALC) Survey – Sunnica, Bay Farm

10/11/15 – Overcast after same

11/11/15 – Clear after overnight rain

12/11/15 – Clear

13/11/15 – Clear then rain

Label for soil sample data locations plotted: BF

Table 7 - Soil data for sample points in Sunnica, Bay Farm

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
1	TL6940073100		1	N	w cerial	1	30	10YR3/2	LMS		8	flint					-54	-50	I		4	D	
						2	40	10YR4/3	LMS	M	8	flint				N							stop for chalk
2	TL6950073100		1	n	w cerial	1	30	10YR3/2	LMS		8	flint					-21	-30	I		3b	D	
						2	65	10YR5/4	MSL	M	8	flint				N							
						3	85	10YR6/6	LMS	M	30	chalk				N							stop for chalk
3	TL69600731000		1	NE	w cerial	1	30	10YR3/3	MSL		8	hard stone					-28	-30	I		3b	D	
						2	40	10YR4/3	MSL	M	8	hard stone				N							
						3	60	10YR5/6	LMS	M	15	chalk				N							stop for chalk
5	TL6940073000					1	30	10YR3/2	LMS		8	flint					-54	-50	I		4	D	
						2	40	10YR4/3	LMS	M	8	flint				N							stop for chalk
6	TL6950073000					1	30	10YR3/2	LMS		8	hard stone					-34	-38	I		3b	D	
						2	40	10YR4/3	LMS	M	8	hard stone				N							
						3	60	10YR6/6	LMS	M	30	chalk				N							stop for chalk
7	TL6960073000					1	30	10YR3/3	MSL		8	stone					-19	-23	I		3a / 3b	D	
						2	40	10YR4/3	MSL	M	8	stone				N							
						3	60	10YR5/6	LMS	M	15	chalk				N							stop for chalk
8																							outside site
11	TL7010073000		0		w Cerial	1	30	10YR4/2	LMS		8	flint					-25	-36	I		3b	D	
						2	70	10YR4/4	LMS	M	2	flint				N							stop for chalk
12	TL7020073000		0		w cerial	1	30	10YR4/2	LMS		8	flint					-25	-37	I		3b	D	
						2	50	10YR4/4	LMS	m	8	flint				N							
						3	70	10YR6/6	LMS	M	20	chalk				N							stop for chalk

13	TL7030073000				1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
14	TL7040073000				1	25	10YR3/2	MSL		10	flint		-39	-35	I	3b		D	
					2	40	10YR4/4	MSL	M	10	flint	N							stop for chalk
17	TL6950072900				1	30	10YR3/2	LMS		8	flint		-54	-50	I		4	D	
					2	40	10YR4/3	LMS	M	8	flint	N							stop for chalk
18	TL6960072900	1	S	w cerial	1	30	10YR3/2	MSL		8	hard stone		-18	-19	I	3a		D	
					2	45	10YR5/4	MSL	M	8	hard stone	N							
					3	75	10YR6/6	MSL	M	30	chalk	N							stop for chalk
22	TL7010072900				1	30	10YR4/4	MSL		10	flint		-49	-45	I	3b / 4		D	stop for chalk
23	TL7020072900				1	30	10YR4/4	MSL		10	flint		-49	-45	I	3b / 4		D	stop for chalk
24	TL7030072900				1	30		MSL		20	flint and chalk		-57	-53	I		4	D	stop for chalk, low E-W ridge
25	TL7040072900				1	25	10YR3/2	MSL		10	flint		-39	-35	I	3b		D	
					2	40	10YR4/4	MSL	M	10	flint	N							stop for chalk
27	TL7060072700				1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
28	TL7070072700				1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
29	TL7080072900	0		stubble	1	25	7.5YR4/3	LMS		15	flint and chalk		-43	-45	I	3b		D	
					2	60	7.5YR5/4	LMS	M	15	flint and chalk	N							stop for chalk
30	TL7090072900				1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
31	TL7100072900	0		stubble	1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
34	TL6950072800				1	30	10YR3/2	MSL		8	hard stone		-31	-27	I	3b		D	
					2	45	10YR4/3	MSL	M	8	hard stone	N							stop for chalk
35	TL6960072800				1	30	10YR3/2	MSL		8	hard stone		-15	-20	I	3a		D	
					2	40	10YR4/4	MSL	M	8	hard stone	N							
					3	60	10YR6/6	MSL	M	30	chalk	N							stop for chalk

40	TL7010072800		maize game cover	1	35	10YR4/2	MSL		10	flint		-38	-34	I		3b	D	stop for chalk
41	TL7020072800		headland	1	30	10YR3/2	MSL		8	flint		-16	-18	I		3a	D	
				2	70	10YR4/4	MSL	M	8	flint	N							
				3	80	10YR5/6	LMS	M	20	chalk	N							stop for chalk
42	TL7030072800			1	25	10YR3/2	MSL		10	flint		-39	-35	I		3b	D	
				2	40	10YR4/4	MSL	M	10	flint	N							stop for chalk
43	TL7040072800	0		1	25	10YR3/2	MSL		10	flint		-39	-35	I		3b	D	
				2	40	10YR4/4	MSL	M	10	flint	N							stop for chalk
45	TL7060072600			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
46	TL7070072600			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
47	TL7080072800			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
48	TL7090072800			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
49	TL7100072800			1	25	7.5YR4/3	LMS		10	flint and chalk		-52	-48	I		4	D	
				2	45	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
50	TL7110072800	0	stubble	1	25	7.5YR4/2	LMS		10	flint		-42	-38	I		3b	D	
				2	40	7.5YR4/4	LMS	M	10	flint	N							
				3	70	7.5YR5/4	LMS	m	10	chalk	N							stop for chalk
53	TL6950072700				40		MS		8	flint		-68	-64	I		4	D	stop for stone
54	TL6960072700			1	30	10YR3/2	MSL		8	hard stone		-15	-20	I		3a	D	
				2	40	10YR4/4	MSL	M	8	hard stone	N							
				3	60	10YR6/6	MSL	M	30	chalk	N							stop for chalk
55	TL6970072700			1	30	10YR3/2	MSL		8	hard stone		-15	-20	I		3a	D	
				2	40	10YR4/4	MSL	M	8	hard stone	N							
				3	60	10YR6/6	MSL	M	30	chalk	N							stop for chalk
56	TL6980072700			1	30	10YR5/2	MCL		15	chalk		-39	-35	I		3b	D	stop for chalk
57	TL69900727000	0	plough	1	30	10YR3/2	MSL		8	flint		-31	-27	I		3b	D	
				2	45	10YR4/3	MSL	M	8	flint	N							stop for chalk

59	TL7010072700		plough	1	30	10YR4/2	MSL		8	flint		-34	-30	I		3b	D		
				2	35	10YR4/3	MSL	M	8	flint	N							stop for chalk
60	TL7020072700		plough	1	30	10YR4/2	MSL		8	flint		-34	-30	I		3b	D		
				2	35	10YR4/3	MSL	M	8	flint	N							stop for chalk
61	TL7030072700			1	30		MSL		20	flint and chalk		-57	-53	I		4	D	stop for chalk
62	TL7040072700			1	25	10YR4/2	LMS		8	hard stone		-46	-42	I		3b	D		
				2	70	10YR4/4	LMS	M	8	hard stone	N							stop for chalk
64	TL7060072500			1	25	7.5YR4/3	LMS		15	flint and chalk		-43	-45	I		3b	D		
				2	60	7.5YR5/4	LMS	M	15	flint and chalk	N							stop for chalk
65	TL7070072500	0	W Cereal	1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
66	TL7080072700			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
67	TL7090072700			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
68	TL7100072700	0		1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
69	TL7110072700	0	stubble	1	25	7.5YR4/2	LMS		10	Flint		-43	-39	I		3b	D		
				2	40	7.5YR4/4	LMS	M	10	flint	N							
				3	70	7.5YR6/6	LMS	M	30	chalk	N							stop for chalk
71	TL6960072600				40		LMS		12	flint		-57	-53	I		4	D	stop for chalk
72	6970072600		drilled	1	30	10YR3/2	MSL		8	hard stone		-15	-20	I		3a	D		
				2	40	10YR4/4	MSL	M	8	hard stone	N							
				3	60	10YR6/6	MSL	M	30	chalk	N							stop for chalk
73	TL6890072600		headland	1	30		MSL					-46	-42	I		3b	D	stop for chalk
74	TL6990072600	0	plough	1	30	10YR4/2	MSL		10	flint		-56	-52	I		4	D		
				2	40	10YR4/3	MSL	M	10	Flint	N							stop for chalk
76	TL7010072600		plough	1	30	10YR4/2	MSL		8	flint		-34	-30	I		3b	D		
				2	35	10YR4/3	MSL	M	8	flint	N							stop for chalk
78	TL7030072600			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		

				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N								stop for chalk
79	TL7040072600	0		1	40		LMS					-57	-53	I		4	D		stop for chalk
81	TL7070072400			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N								stop for chalk
82	TL7070072600	1	N	1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N								stop for chalk
83	TL7080072600			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N								stop for chalk
84	TL7090072600			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N								stop for chalk
85	TL7100072600	0		1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N								stop for chalk
86	TL6960072500		drilled	1	30	10YR3/2	LMS		12	flint		-66	-62	I		4	D		
				2	40	10YR5/8	MS	M	2	hard stone	N								stop for stone
87	TL6970072500		drilled	1	30	10YR3/2	MSL		8	hard stone		-15	-20	I	3a		D		
				2	40	10YR4/4	MSL	M	8	hard stone	N								
				3	60	10YR6/6	MSL	M	30	chalk	N								stop for chalk
88																			tree belt
89	TL6990072500	0	plough	1	30	10YR4/2	MSL		8	flint		-16	-20	I	3a		D		
				2	60	10YR4/4	MSL	M	8	flint	N								stop for chalk
91	TL7010072510	0	plough	1	30		MSL					-49	-45	I	3b		D		stop for chalk, offset for game pen
92																			tree belt
93	TL7030072500	1	N	1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N								stop for chalk
94	TL7040072500			1	40		LMS					-56	-52	I		4	D		stop for chalk
97	TL7070072600	2	N	1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N								stop for chalk
98	TL7080072500	1	N	1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D		
				2	40	7.5YR4/4	LMS	M	10	flint and chalk	N								stop for chalk

99	TL7090072500	0			1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
100	TL7100072500	1	N		1	25	7.5YR4/3	MSL		10	flint and chalk								
					2	40	7.5YR4/4	MSL	M	10	flint and chalk	N							stop for chalk
101	TL6960072400			drilled		50		LMS		8	flint		-47	-43	I	3b		D	stop for stone
102	TL6970072400			drilled	1	30	10YR3/2	LMS		8	hard stone		-56	-52	I		4	D	
					2	40	10YR4/4	LMS	M	4	hard stone	N							stop fo chalk
108	TL7030072400	2	N		1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
109	TL7040072400	2	N	Plough	1	30		LMS					-64	-60	I		4	D	stop for chalk
113	TL7080072400	2	N		1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
114	TL7090072400	1	N		1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
115	TL7100072400	2	N		1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	45	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
116	TL6970072300					35		LMS											stop for chalk
121	TL7030072300	2	NW		1	25	7.5YR4/3	LMS		10	flint and chalk		-56	-52	I		4	D	
					2	40	7.5YR4/4	LMS	M	10	flint and chalk	N							stop for chalk
122	TL7040072300	0		headland	1	30		LMS					-64	-60	I		4	D	stop for chalk
127	TL7090072300																		woodland
134	TL70300722200	2	W	stubble	1	30	10YR4/2	MSL		8	flint		-34	-30	I	3b		D	
					2	35	10YR4/3	MSL	M	8	flint	N							stop for chalk

Agricultural Land Classification (ALC) Survey – Sunnica, Snailwell

Western side has prominent hummocks and ditches causing microtopography constraints
North and west in EA Flood Zone 3

Label for soil sample data locations plotted: S

Table 8 - Soil data for sample points in Sunnica, Snailwell

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
4	TL6370069000	5	0			1	30		peat		0										3b	Flood	Flood zone 3
						2	60	10YR6/1	FSL		0			10YR6/6									stop for stone
5	TL6380069000	7	0		grass	1	40		peat		0										3b	Flood	Flood zone 3
						2	70	10YR7/1	LFS	M	0			10YR6/6									stop for stone
6	TL6390069000	8	0		grass		120		peat		0										3b	Flood	Flood zone 3
12	TL6350068900	4			grass		120		peat		0										3b	Flood	Flood zone 3
13	TL6360068900	4			grass	1	30	10YR3/2	MSL		10	hard stone					-48	-44			3b	Drought and Flood	Flood zone 3
						2	40	10YR7/1	LMS	M	10	hard stone		10YR6/6		N							stop for stone
14	TL6370068900	4			grass	1	30	10YR3/2	MSL		10	hard stone					-48	-44			3b	Drought and Flood	Flood zone 3
						2	40	10YR7/1	LMS	M	10	hard stone		10YR6/6		N							stop for stone
15	TL6380068900	5			grass	1	30	10YR3/2	MSL		10	hard stone					-48	-44			3b	D	
						2	40	10YR7/1	LMS	M	10	hard stone		10YR6/6		N							stop for stone
16	TL6390068900	6	0		seedbed	1	30	10YR3/2	MSL		10	hard stone					-48	-44			3b	D	
						2	40	10YR7/1	LMS	M	10	hard stone		10YR6/6		N							stop for stone
18	TL6410068900	9	0		unimproved		60	black	organic sand		0						11	15	II		3b	Flood risk	stop for stone
19	TL6420068900	5	0		unimproved	1	30	10YR3/2	MSL		2	hard stone					-12	-17	I		3a	D	
						2	65	10YR5/2	MSL	M	2	hard stone				N							stop for stone
20	TL6430068900	2	2	W		1	30	10YR4/2	MSL		30	chalk					-50	-46	I		3b / 4	D	stop for chalk
22	TL6350068800	7			unimproved		120		peat		0										3b	Flood	Flood Zone 3
23	TL6360068800	7			unimproved	1	30	10YR3/2	MSL		10	hard stone					-48	-44	I		3b	D	
						2	40	10YR7/1	LMS	M	10	hard stone		10YR6/6		N							stop for stone

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
24	TL6370068800	5			seedbed	1	30	10YR3/2	MSL		20	hard stone	10%>6cm				-56	-52	I		4	D	
						2	40	10YR7/1	LMS	M	20	hard stone		10YR6/6		N							stop for stone
25	TL6380068800	3	hollow				50		MS		15	hard stone					-70	-66	I		4	D	stop for stone
26	TL6390068800	3					50		MS		15	hard stone					-70	-66	I		4	D	stop for stone
27	TL6400068800	5					50		MS		15	hard stone					-70	-66	I		4	D	stop for stone
29	TL6420068800	2	1	w		1	25	10YR3/2	MSL		15	hard stone					-42	-38	I		3b	D	
						2	45	10YR4/3	MSL	M	15	hard stone				N							stop for stone
30	TL6430068800	7	1	NW		1	30	10YR4/2	MSL		30	chalk					-50	-46	I		3b / 4	D	stop for chalk
31	TL6440068800	8	0			1	25	10YR3/2	MSL		5	Hard stone					-22	-22	I		3b	D	
						2	55	10YR4/3	MSL	M	5	hard stone				n							stop for chalk
33	TL6360068700		0		sedge		120		peat		0										3b	Flood	Flood Zone 3
34	TL6370068700	4	0		grass	1	30	10YR3/2	MSL		15	flint					-46	-42	I		3b	D + Flood	
						2	50	10YR5/6	LMS	M	15	flint				N							stop for stone
35	TL6380068700	5	0				40		MS		15	flint					-75	-71	I		4	D	
36	TL6380068700	5	0		seedbed	1	50		MS		10	flint					-67	-63	I		4	D	stop for chalk
37	TL6400068700	3	0		seedbed	1	30	10YR3/2	MS		10	hard stone					-57	-53	I		4	D	
						2	70	10YR6/1	LMS	M	30	flint and chalk		10YR6/6		N							
39	TL6420068700	2	1	W		1	25	10YR3/2	MSL		15	hard stone					-42	-38	I		3b	D	
						2	45	10YR4/3	MSL	M	15	hard stone				N							stop for stone
40	TL6430068700	4	1	SW		1	25	10YR3/2	MSL		5	Hard stone					-37	-33	I		3b	D	
						2	50	10YR4/3	MSL	M	5	hard stone				n							stop for chalk
41	TL6440068700	9	0			1	25	10YR3/2	MSL		5	Hard stone					-37	-33	I		3b	D	
						2	50	10YR4/3	MSL	M	5	hard stone				n							stop for chalk
43	TL6360068600	2	0		sedge		120		peat		0										3b	Flood	flood Zone 3

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon	Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
44	TL6370068600	4					120		peat		0										3b	Flood	Flood Zone 3
45	TL6420068600	6	1	w		1	25	10YR3/2	MSL		15	hard stone					-42	-38	I		3b	D	
						2	45	10YR4/3	MSL	M	15	hard stone				N							stop for stone
47	TL6400068600	1				1	30	10YR3/2	MSL		10	flint					-20	-25	I		3a / 3b	D	
						2	45	10YR4/4	MSL	M	10	flint				N							
						3	80	10YR5/1	MCL	N	10	hard stone				N							stop for stone
50	TL6430068600	9	0			1	30	10YR4/2	MSL		30	chalk					-50	-46	I		3b / 4	D	stop for chalk
51	TL6440068600	8	0			1	30	10YR4/2	MSL		15	hard stone											possible filled in pond
						2	80	10YR4/4	peaty sand		5	hard stone											stop for stone
52	TL6370068500	4					120		peat		0										3b	Flood	flood zone 3
53	TL6380068500	5					30		peaty sand		20	flint									3b	flood	stop for stone, flood zone 3
54	TL6390068500	13	0		perm past	1	35	black	MS		0						-43	-54	I		3b / 4	D, topsoil	
						2	50	10YR3/2	MS	M	0					N							
						3	80	black	MS	M	0					N							
						4	100	10YR5/1	MS	M	0					N							stop for stone, flood risk
55	TL6400068500	13	0		perm past	1	40	10YR3/2	MS		0						-60	-56			4	D	stop for stone
57	TL6420068500	5	0			1	25	10YR3/2	MSL		15	hard stone					-42	-38	I		3b	D	
						2	45	10YR4/3	MSL	M	15	hard stone				N							stop for stone
58	TL6430068500	9	0			1	30	10YR4/2	MSL		15	hard stone					-66	-62	I		4	D	stop for chalk
59	TL6380068400	4	0				40		MS		5	hard stone					-60	-56	I		4	D	stop for stone
60	TL6390068400	15	0		perm past	1	25	10YR32	MS		0						-26	-30	I		3b	D	
						2	60	10YR5/1	SCL	m	0		10YR5/8	Y		N							stop for stone, low fall, flood risk
61	TL6400068400	8	0		perm past	1	25	black	MS		0						2	-15	I		3a	D	
						2	70	10YR5/2	FSL	M	0					N							stop for stone, low fall, flood ris, microtopo

ID	Grid Ref	Altitude	Slope	Aspect	Crop	Horizon		Lower depth	Colour	Texture	Subsoil structure	Stone %	Stone type	Topsoil large stone	Mottles	Gley	Slowly permeable	MB Wheat	MB Potato	Wetness Class	Calc	ALC Grade	Limitation	Notes
63	TL6420068400	7	0			1		25	10YR3/2	MSL		15	hard stone					0	-14	L		3a	D	
						2		70	10YR4/3	MSL	M	15	hard stone				N							stop for stone
65	TL6390068300	16	0		perm past	1		25	black	MS		0						2	-15	I		3b	Flood	Flood Zone 3
						2		70	10YR5/2	FSL	M	0					N							stop for stone, low fall, flood ris, microtopo
66	TL6400068300	8	0		perm past	1		25	10YR3/2	HCL		2	flint							III	Calc	3a	Wet	
						2		35	10YR4/2	HCL	M	2	flint		10YR5/6	Y	N							stop for stone, low fall, flood ris, microtopo
						3	50+		10YR5/1	HCL	P	2	flint		10YR5/6	Y	Y							
68	TL6420068300	8	0		seedbed	1		25	10YR3/2	MSL		5	Hard stone					-27	-23	I		3b	D	
						2		50	10YR4/3	MSL	M	5	hard stone				n							stop for chalk
69	TL6400068200	9	0		perm past	1		40	10YR3/2	peaty sand		0						-60	-56	I		4	D	stop for stone, flood zone 3

570000

275000

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LEGEND

The Order limits

Soil Sample Location

BF = Bay Farm
CP = Chippenham Park
CPa = Chippenham Park Additional Area
ER = Elms Road
LF = Lee Farm
MF = Manor Farm
S = Snailwell
SW = Sunnica West Additional Land

NOTE:
Public highways run through the Sunnica East Site, which are not part of the site boundary. These have been digitised based on the 1:1250 scale OS Mastermap.

Document Reference: EN010106/APP/6.3
APFP Regulation: 5(2)(a)

Purpose of Issue
FOR DCO SUBMISSION

Client
SUNNICA LTD

Project Title
sunnica energy farm

Drawing Title
BAIRD SOIL AGRICULTURAL LAND CLASSIFICATION SURVEY SOIL DATA POINTS

Drawn	Checked	Approved	Date
LL	DW	NC	02/08/2021

AECOM Internal Project No. 60589004
Scale @ A3 1:18,000

AECOM
Unit 1 Wellbrook Court,
Girton,
Cambridge, CB3 0NA
United Kingdom
Telephone (01223) 488000
www.aecom.com

Drawing Number 60589004_ES_DRAFT_001
Rev 0

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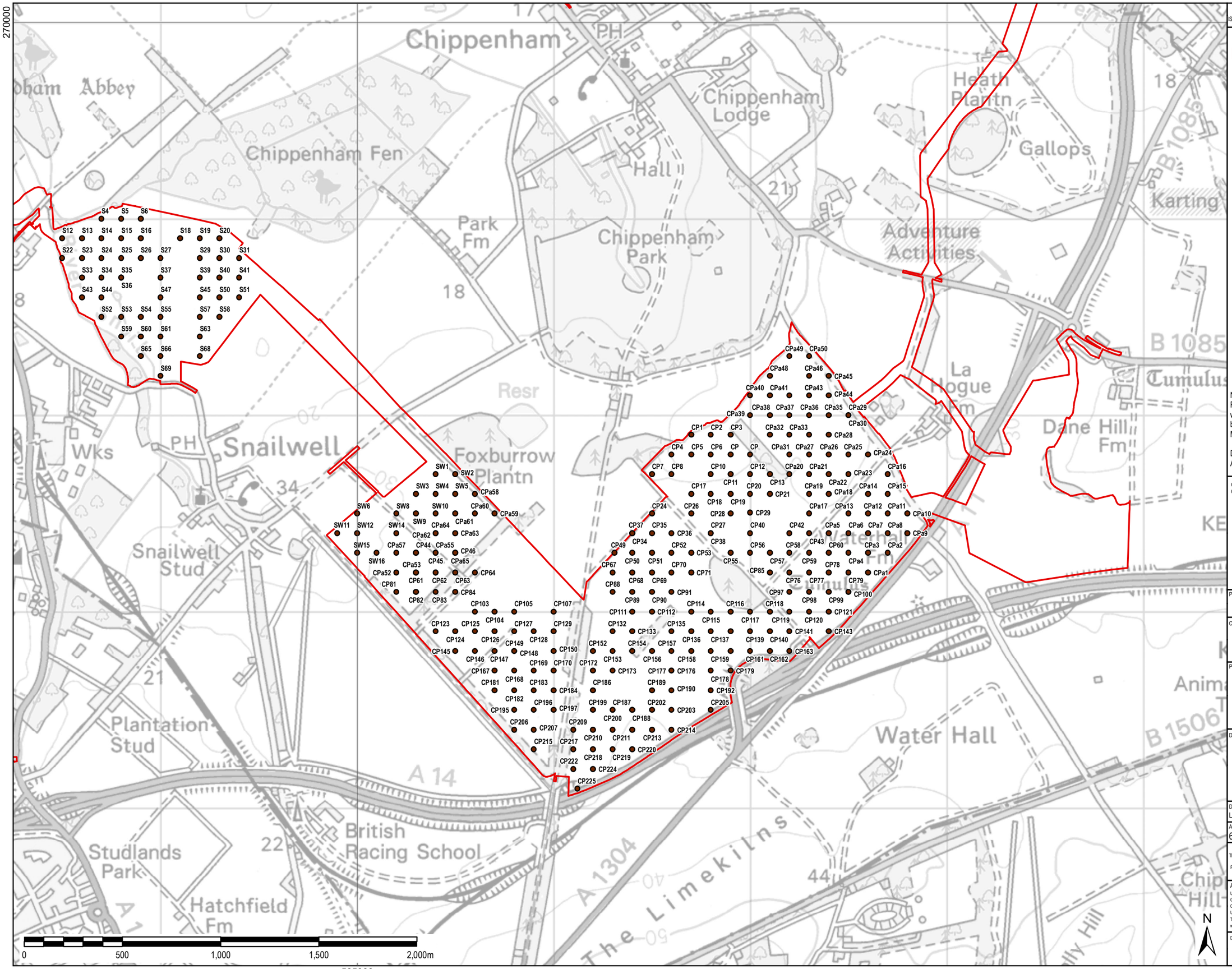
0 500 1,000 1,500 2,000m

570000

File Name:\\eu.aecomnet.com\emia\UKIUKCBG1\Jobs\PR-334327_Sunnica_Energy_Farm\400_Technical\434_Technical Disciplines\17. GIS\Layout\ES\Working\210723_SunnicaEnergyFarm_PlottingSoilsData.mxd

565000

270000



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File Name:\\eu.aecomnet.com\emia\UKILUKCBG1\Jobs\PR-334327_Sunnica_Energy_Farm\400_Technical\434_Technical Disciplines\17. GIS\Layout\ES\Working\210723_SunnicaEnergyFarm_PlottingSoilsData.mxd

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SOIL DATA POINTS

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LL	DW	NC	02/08/2021

AECOM Internal Project No.	Scale @ A3
60589004	1:17,500

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Drawing Number	Rev
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