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REMOVAL OF TOPSOIL, LAND NORTH OF KEYMER ROAD, DITCHLING, EAST SUSSEX
REPORT OF SURVEY

The Resource Planning Team was commissioned to prepare a technical appraisal of the field that had been subject to soil stripping operations, and technical advice was requested on the effect of the operations on the ALC grade.

The field was inspected on the 29 May 1992 and 3 auger borings were made within the field with a further 2 on adjacent land. No previous information was available regarding the original field contours or the original topsoil textures. The borings that were made within the field revealed 2 ALC grades. The higher eastern land exhibits sandy droughty profiles whilst the lower western land is heavier and suffers from a wetness limitation.

The soils in the eastern section are typically deep loamy medium sands extending to at least 120 cm. An even surface has been left after the stripping but the crop (a mixture of grass, clover and oilseed rape) showed a poor response with a sparse sward. It is difficult to assess the degree to which the soils have been affected by the topsoil stripping because it has not proved possible to find a suitable adjacent soil to act as a control. The northern boundary of the field is marked by a drain which also acts as the approximate location for a break of slope with high land to the north and slightly different soils. The soil observation to the north revealed a medium sandy silt loam topsoil overlying an upper subsoil of medium sandy loam and a lower subsoil of medium clay loam. Gleying was evident within 40 cm but the subsoils contain good structural conditions and there is therefore only a slight wetness limitation which restricts the soils to Grade 2.

Very sandy soils with no topsoil suffer from four potential problems:-

1. poor nutrient retention
2. recurring acidity due to rapid leaching
3. structural instability
4. erosion risk (Given the gentle slope, this is not an active problem).

Given the potential for the first three to occur on the site, the land quality is affected. There is, however, no firm guidance available as to how far to downgrade such soils. Items 1 and 2 may not prove to be long term limitations, as they may be rectified by, for example, regular applications of FYM, but item 3 may prove difficult to manage. The soils of the eastern section may be prone to slaking and will therefore have a reduced amount of water available for roots in the top 25 cm. This increases the drought risk and downgrades soils that could otherwise qualify for Grade 2 to Subgrade 3A at best (and towards the bottom end of 3A).

As there is no record of the original ground levels it is not possible to accurately estimate the depth of topsoil that has been removed from this eastern section, but a crude estimate is possible by measuring the depth of the cut that has been left along the hedge boundaries. There is a variation in depth along the boundaries with 50 cm taken from part of the eastern most boundary but with no evidence of any cut along part of the southern most boundary along Keymer Road. The average estimated depth of cut in the eastern section is approximately 25 cm. If such a depth of topsoil had actually been taken from this eastern section and the texture was a medium

sandy silt loam or medium sandy loam then the current droughtiness limitation could be overcome and the profile would be potentially Grade 1.

The field slopes to the west and this lower lying land exhibits clear evidence of wetness in the profile. The soil boring in this area describes a clay topsoil with a clay upper subsoil and a heavy silty clay loam lower subsoil. The structure in the upper subsoil is poor giving rise to a slowly permeable layer with low porosity and clear evidence of gleying. Below this, a watertable was observed at 70 cm. The shallow gleying and slowly permeable layer places this soil in Wetness Class IV and this, in combination with the clay topsoil and the prevailing field capacity day level, places the soils in Grade 4. A suitable control soil exists to the west of the stripped area in the adjacent field where similar general profiles exist but with an ALC grade of Subgrade 3B. The difference is directly related to the fact that the topsoil has been removed on the adjacent land bringing clay textures to the surface. The control soil exhibits a medium silty clay loam topsoil overlying poorly structured and slowly permeable layers. These soils are also placed in Wetness Class IV but the lighter texture results in a less severe workability limitation.

The depth of cut along the field boundaries in the western section was also measured and ranges from approximately 10 to 30 cm with an average depth of 20 cm.

The removal of the topsoil and the exposure of sandy subsoils in the eastern section does not create an erosion risk on this site given the very gentle slopes. Normal agricultural management would prevent any actual erosion.

The total size of the field affected by topsoil stripping is 1.35 ha
The total volume of topsoil removed on the eastern section is 2,250 m^3
The total volume of topsoil removed on the western section is 900 m^3

APPENDIX 1

REFERENCE LW/91/1128 NS/MM

REMOVAL OF TOP SOIL, LAND NORTH OF KEYMER ROAD, DITCHLING, EAST SUSSEX. REPORT OF SURVEY

The Resource Planning Team of ADAS was commissioned by MAFF to prepare a technical appraisal of the field that has been subject to soil stripping operations, and technical advice was requested on the effect of the operations on the ALC Grade.

The field was inspected on 29 May 1992 and 3 auger borings were made within the field with a further 2 on adjacent land. No previus information was available regarding the original field contours or the original topsoil textures. The borings that were made within the field revealed 2 Agricultural Land Classification (ALC) Grades. The higher eastern land exhibits sandy droughty profiles whilst the lower western land is heavier and suffers from a wetness limitation.

The soils in the eastern section are typically deep loamy medium sands extending to at least 120 cm. An even surface has been left after the stripping, but the crop (a mixture of grass, clover, and oilseed rape) showed a poor response with a sparse sward. It is difficult to assess the degree to which the soils have been affected by the topsoil stripping because it has not proved possible to find a suitable adjacent soil to act as a control. The northern boundary of the field is marked by a drain which also acts as the approximate location for a break in slope with high land to the north and slightly different soils. The soil observation to the north revealed a medium sandy silt loam topsoil overlying an upper subsoil of medium sandy loam, and a lower subsoil of medium clay loam. Gleying was evident within 40 cm but the subsoils contain good structural conditions and there is therefore only a slight wetness limitation which restricts the soils Grade 2.

Very sandy soils with no topsoil suffer from 4 potential problems:-

1. Poor nutrient retention.

2. Recurring acidity due to rapid leaching.

   Structural instability.

   Erosion risk (given the gentle slope, this is not an active problem).

Given the potential for the first three to occur on the site, the land quality is affected. There is, however, no firm guidance available as to how far to down grade such soils. Items 1 and 2 may not prove to be long term limitations, as they may be rectified by, for example, regular applications of farmyard manure, but item 3 may prove difficult to manage. The soils of the eastern section may be prone to slaking and will therefore have a reduced amount of water available for roots in the top 25 cm. This increases the drought risk and downgrades soils that could otherwise qualify for Grade 2 to subgrade 3A at best, (and towards the bottom end of 3A).

As there is no record of the original ground levels it is not possible to accurately estimate the depth of topsoil that has been removed from this eastern section, but a crude estimate is possible by measuring the depth of the cut that has been left alongside the hedge boundaries. There is a variation in depth along the boundaries with 50 cm taken from part of the easternmost boundary but with no evidence of any cut along part of the southernmost boundary along Keymer Road. The average estimated depth of cut in the eastern section is approximately 25 cm. If such a depth of topsoil had actually been taken from this eastern section and the texture was a medium sandy silt loam or medium sandy loam then the currant droughtiness limitation could be overcome and the profile would be potentially Grade 1.

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The total size of the field affected by topsoil stripping is 1.35 ha.
The total volume of topsoil removed on the eastern section is 2250 cu metres.
The total volume of topsoil removed on the western section is 900 cu metres.

Edgar Black
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June 1992