

**LANCASTER DISTRICT L.P.
PROPOSED HEYSHAM TO M6 LINK
ROAD
Agricultural Land Classification
Desk Exercise
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DESK EXERCISE

ALC: PROPOSED HEYSHAM TO M6 LINK ROAD

Summary

The agricultural land around Lancaster is limited by climate to Grade 2 at best.

Further information has been collated from published soil surveys, from the provisional ALC survey and from existing detailed ALC information. Taken together this information suggests that land in this area could potentially be found of between Grade 2 and Grade 4 quality.

The existing detailed ALC suggests that both north and south of Lancaster the distribution of grades is dominated by Subgrades 3a and 3b. The key limitations found were soil wetness, gradient and topsoil stoniness. However, the surveys found that north of the city a higher proportion of land was of Subgrade 3a quality, the key difference being the lower proportion of topsoil stones.

The detailed ALC available covered about half of the proposed blue and orange routes, but rather less of the green route. Greater uncertainty must therefore be attached to the conclusions regarding the green route.

Based on the information available, the orange route traverses a significant proportion of best and most versatile land, whilst the blue and green routes traverse relatively little, although the green route would cross potentially good quality land south west of Galgate.

It must be noted that the large-scale (1:250,000) of the available soil survey confers some degree of uncertainty for those parts of the routes not surveyed by RPT in 1997. Only a site survey could confirm the actual ALC grading for those areas not surveyed.

Introduction

1. This desk exercise considers the likely ALC grades along the three routes proposed for the construction of a link road from the M6 motorway to Salt Ayre, west of Lancaster.

Climate

2. Climatic criteria are considered first when classifying land as climate can be overriding in the sense that severe limitations will restrict land to low grades irrespective of favourable site or soil conditions.

3. The climatic data shown in Table 1 are typical of the land around Lancaster affected by the proposed road. The combination of rainfall and temperature in the area restricts it to Grade 2 at best. The key climatic variables used are given in and were obtained from the published 5km grid datasets using standard interpolation procedures (Meteorological Office, 1989).

Table 1: Climatic and altitude data

Factor	Units	Values	
Grid reference	N/A	SD 476 643	SD 487 581
Altitude	m, AOD	25	69
Accumulated Temperature	day°C (Jan-June)	1395	1347
Average Annual Rainfall	mm	1042	1075
Field Capacity Days	days	241	240
Moisture Deficit, Wheat	mm	69	63
Moisture Deficit, Potatoes	mm	52	44
Overall climatic grade	N/A	Grade 2	Grade 2

Relief and Land Use

4. Most of the land affected by the proposed routes consists of gently to moderately undulating grassland, intensively grazed by cattle, or cut for silage.

Soils

5. The soils described are as represented on the Soil Survey of England and Wales (SSEW) 1:250 000 Scale Sheet 1, *Soils of Northern England*, and described by SSEW (1984).

Blue Route

6. From the Lune crossing to Aldcliffe soils along the route are mapped as *Downholland2 Association*. From Aldcliffe to the A6 the soils are mapped as *Oglethorpe Association*. East of the A6 the soils are mostly mapped as *Brickfield2 Association*.

Green Route

7. Between the Lune Bridge and the A683 the green route follows the same course as the blue route, passing over soils of the Downholland2 and Oglethorpe Associations. The proposed spur to the A6 is also mapped as Oglethorpe Association, as is the majority of the route west of Galgate to the M6. However south west of Galgate, near the River Conder, Wharfe Association soils are mapped.

Orange Route

8. Passing to the north of Lancaster, most of the orange route is mapped as Wick Association. A small area of Oglethorpe Association is mapped on the edge of Torrisholme, with Brickfield2 Association between Carus Lodge and the M6.

Soil Association Descriptions

9. The following paragraphs describe the dominant soil series for each association.

10. *Brickfield Series* is described as a slowly permeable seasonally waterlogged fine loamy soil, generally used for pasture. A typical profile has a topsoil texture of slightly stony clay loam, passing to further horizons of clay loam, gleyed in the upper subsoil and slowly permeable in the lower subsoil. The soil is typically Wetness Class IV. In the Lancaster area, such soils would be unlikely to give best and most versatile agricultural land with soil wetness the most likely limitation.

11. *Downholland Series* is described as a deep stoneless clayey or silty alluvial soil, typically affected by groundwater. Agricultural use varies greatly depending on local climatic factors and drainage. A typical profile has a stoneless organic silty clay topsoil, passing to further gleyed horizons of silty clay. With pumped drainage the soil is potentially Wetness Class II, but if drained by mole drains or open ditches is typically Wetness Class IV. Taking into account the heavy textured topsoil, and the number of field capacity days in the area, it is unlikely that these soils would give best and most versatile agricultural land, with soil wetness the most likely limitation.

12. *Oglethorpe Series* is described as a deep well drained coarse to fine loamy soil, well suited to dairying. Topsoil and subsoil are slightly to moderately stony, stone content increasing with depth. The soils are permeable and typically Wetness Class I. Despite the stoniness of the profile the combination of a wet climate and deep soil results in little limitation by soil droughtiness in this area. These soils might be expected to give best and most versatile agricultural land, although topsoil stoniness and gradient are potential limitations.

13. *Wick Series* is described as a deep well drained coarse loamy and sandy soil, locally over gravel. The soils are versatile and can be used for a wide range of arable and livestock uses. Topsoil and subsoil are slightly to moderately stony, increasing with depth. The soils are typically Wetness Class I, with little limitation by soil droughtiness in this area. These soils might be expected to give best and most

versatile agricultural land, although topsoil stoniness, gradient and where localised gleying occurs, soil wetness, are potential limitations.

14. *Wharfe Series* is described as a deep stoneless permeable fine loamy alluvial soil, suitable for arable or livestock use, but often with a risk of flooding. A typical profile describes a stoneless clay loam topsoil, passing to horizons of clay loam and/or sandy loam. The soils are typically Wetness Class I, with little limitation by soil droughtiness in this area. These soils might be expected to give best and most versatile agricultural land, although potential limitations are flood risk, and where localised gleying occurs, soil wetness.

Provisional ALC

15. MAFF Provisional ALC Sheet 94 (1964) shows the majority of agricultural land along all routes as Grade 3. East of the River Lune crossing the blue/green route would traverse a small area mapped as Grade 4.

Detailed ALC

16. Parts of all three proposed routes have been subject to detailed survey by RPT in June-October 1997, in connection with the Lancaster District Local Plan. The areas surveyed are shown on the accompanying map.

17. South of Lancaster, a large area between the A683 and the M6 was surveyed. The majority of the land was classified as Subgrade 3b, the key limitations being soil wetness, topsoil stoniness and gradient. East of the A6, the key limitation is soil wetness, this corresponding with the area mapped as Brickfield Series by SSEW. West of the A6 free draining soils were found, but most of the area was limited to Subgrade 3b by either topsoil stoniness or gradient, corresponding to the area mapped as Oglethorpe Series by SSEW. Within this area, Subgrade 3a was mapped on patches of less stony and less sloping land. Where more severe gradients were found, small areas of Grade 4 were mapped.

18. North of Lancaster, the area between Torrisholme and the A6 was surveyed. The agricultural land was classified as Subgrade 3a and Subgrade 3b in roughly equal proportion, the key limitations being soil wetness and gradient. This corresponds well to the description of Wick Series given by SSEW, free draining and slightly stony. Where more severe gradients were found, a small area of Grade 4 was mapped.

Blue/Green Routes

19. Between the M6 and the A683, the blue route and the A6 link of the green route traverse or skirt land that was surveyed by RPT. The majority of both routes was mapped as Subgrade 3b, with small areas of Subgrade 3a and Grade 4. Between the Lune Crossing and the A683, the combined blue/green route crosses soils of the Downholland and Oglethorpe Associations. The area mapped as Downholland Association is low lying and probably not optimally drained. It is likely that this land would fall into Wetness Class IV. Based on the available topographic and detailed

ALC information to the east, the majority of the area mapped as Oglethorpe Association would be of Subgrade 3b quality.

20. Between the A683 and Junction 33 of the M6 the green route crosses an area for which there is no detailed ALC available. Most of the route is mapped as Oglethorpe Association by SSEW, with Wharfe Association mapped south west of Galgate. As further north, the area mapped as Oglethorpe is likely to be predominantly Subgrade 3b, with smaller areas of Subgrade 3a. The area mapped as Wharfe Series is potentially best and most versatile. Flooding would be a potential limitation, but current advice from the Environment Agency is that flooding of the River Conder in the area affected would be unlikely.

Orange Route

21. For the orange route, detailed ALC information is available for the western half. As most of the eastern half is also mapped by SSEW as Wick Association, it is likely that the distribution of grades would be similar. Close to the M6, where the Lune is crossed, Brickfield Association is mapped by SSEW, and it is likely that the land would be restricted to Subgrade 3b by soil wetness.

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