COMMENTS OF AGRICULTURAL LAND CLASSIFICATION AND RESTORATION PROPOSALS FOR LAND AT BOZEAT, NORTHAMPTONSHIRE

1. INTRODUCTION

1.1 The information regarding land quality and restoration proposals and methodology are contained within Section 5 of the Environmental Statement submitted as part of the planning application. Additionally within the Environmental Statement is a spreadsheet detailing all soil movements for all working cells. However, although this spreadsheet shows volumes of soils stripped and restored to each cell there are no details as to the actual profiles restored using the different soil materials within each cell. Therefore it is not possible to work out from the spreadsheet the restoration profiles proposed for each part of each cell. Comments within this report are therefore limited to the information contained within Section 5 of the Environmental Statement which consists of the report by Reading Agricultural Consultants (RAC).

2. AGRICULTURAL LAND CLASSIFICATION

2.1 The area of the application site differs from that previously proposed and hence contains additional land which was not surveyed as part of the ADAS survey of the site. The changes include additional land in the east and south with a reduction in the extent of the site in the west.

2.2 The absence of auger boring and soil pit data from the RAC report make assessment of the findings of RAC difficult.

2.3 The map of land quality provided by RAC within the report shows a greater extent of 'best and most versatile' land to that found by ADAS. Areas of land assessed as Subgrade 3b quality by ADAS are mapped as Subgrade 3a or even Grade 2 by RAC. Generally in the east of the site there is agreement that

Subgrade 3b land predominates however this is more extensive and extends further west in the ADAS survey than in the RAC assessment.

2.4 Paragraph 2.2.1.1 states that two soil inspection pits were used to examine detailed soil profile characteristics. However, Plan RAC 1 shows the location of three soil pits. In the absence of the soil pit information it is not possible to know the number of soil pits examined. This is important as if only two soil pits were dug and examined in detail then RAC would have no detailed information on some of the soil types identified within their report.

3. SOIL RESOURCES

3.1 RAC provide maps of the locations of topsoil, upper subsoil and lower subsoil resources which can be compared to the soil types map produced as part of the ADAS report.

3.2 There is a reasonable degree of agreement for the distribution of the topsoil types identified by RAC and the ADAS soil types. However, the RAC distribution does include some heavier textured topsoils with lighter materials in the centre of the site and vice versa in the mid south of the site according to the ADAS survey information.

3.3 Similar comments apply to the distribution of upper subsoil types as mapped by RAC as for topsoil types. Additionally the extent of permeable clay textured upper subsoil was found to be more limited in the ADAS survey. In the absence of detailed information from RAC it is difficult to establish the criteria used for the differentiation of the soil types.

3.4 The distribution of lower subsoil type A as mapped by RAC is reasonable when compared with information from the ADAS survey. However, this lower subsoil type was found to be more extensive in the mid-southern area of the site in the ADAS survey, corresponding to the northern half of lower subsoil type B

as mapped by RAC. Again in the absence of detailed information from RAC the criteria used for the differentiation of soil types is unknown.

4. WORKING THE SITE

4.1 The principle of direct placement of soils wherever possible as stated in paragraph 3.4.1.1 is to be recommended.

4.2 Paragraph 3.4.1.2 states no soil handling will take place during heavy rain. Soil movement criteria should address the issue of re-sampling and testing of soils following rain and no soil movements should take place during rain. Notes within the DOE document Guidance on Good Practice for the Reclamation of Mineral Workings to Agriculture, Appendix 2 refer directly to rainfall and should be used to produce criteria for soil handling during and after rainfall events.

4.3 The methodology for sampling and testing of soil types for lower plastic limit determination and criteria for soil stripping, sampling and measurement of soil moisture content need to be more detailed than the outline in paragraph 3.4.1.3.

4.4 Paragraphs 3.4.1.4 to 3.4.1.6 inclusive give the thicknesses of topsoils and upper and lower subsoils, however, no information has been provided to allow for the assessment of the accuracy of these thicknesses. Information from the ADAS survey indicates that in some areas of the site the thicknesses stated in the RAC report would result in the mixing of material from different horizons.

4.5 Paragraph 3.4.1.9 states that topsoil and high quality subsoils will be stripped from all areas where lower quality soils are to be stored. Topsoil should also be stripped from any areas in which there is to be subsoil storage.

4.6 The proposed restored soil profile given in paragraph 3.5.3.2 would give a potential for Subgrade 3a quality land to be restored. However, great care would be required to ensure no compaction is present in the clayey textured upper subsoil horizon. No details are given for soil profiles of land to be restored to potential Grade 2 within this working Phase.

4.7 The proposed restoration profile given for Stage 2, Phase B in paragraph 3.5.4.2 states that 280 mm of topsoil type B will overlie a thin layer of upper subsoil type B which in turn overlies three further horizons of upper and lower subsoils. The thin layers and the number of horizons may prove operationally very difficult to achieve. Once again no details are given as to the proposed restoration profiles of other grades of land restored within this phase.

4.8 The paragraph numbers for Development Stage 3, Phase C are the same as for Development Stage 2; Phase B (3.5.4). The details given in paragraph 3.5.4.2 (Stage 3; Phase C) for the proposed reinstated soil profile of potential Grade 2 quality land would only achieve this high quality if the lower subsoil type C is rootable and able to provide moisture for plant growth. If this horizon should be compacted and impenetrable to roots then this profile would only have the potential to achieve land of Subgrade 3a quality due to droughtiness as this horizon would be too deep to alleviate any compaction following reinstatement of the full soil profile. As the proposals are for lower subsoils and overburden to be stripped in reinstated using earth scrapers (paragraph 3.4.1.13) then the potential does exist for serious compaction to be present within these lower subsoil horizons despite ripping/loosening of the lower subsoil prior to placement of further soil horizons. Additionally it is proposed to use topsoil type B for the restoration of this very good quality land whereas paragraph 2.3.1.4 of the RAC report stakes that the best use of this resource is for the reinstatement of Subgrade 3a and 3b land.

4.9 The details given in paragraph 3.5.5.2 of the proposed reinstated soil profile for the restoration of Subgrade 3a land give a lower subsoil of mixed materials. All these materials are clay textured with the upper and lower subsoils of type C being slowly permeable in situ prior to working. The proposed soil profile is likely therefore to result in a slowly permeable layer being present at only 58 cm below the soil surface. This profile would therefore be assessed as Wetness Class III which in combination with the clay/heavy clay loam textured topsoil of type B would result in the profile being no higher than Subgrade 3b quality.

4.10 Paragraph 3.5.7.2 gives details of typical soil profiles for the restoration of the site. The typical profile given for the restoration of land to potential Grade 2 quality differs from the profile given for Grade 2 land within paragraph 3.5.4.2 (Stage 3; Phase C) in which it is proposed to use topsoil type B (assessed as best used for the reinstatement of Subgrade 3a and 3b quality land by RAC at paragraph 2.3.1.4). The typical profile given for the Grade 2 land will only achieve this high quality if the clay textured lower subsoil type C is rootable and provides moisture for plant growth. There is some doubt if this will be the case as discussed above.

4.11 The two typical profiles given for the restoration of Subgrade 3a land also differ from the examples given for the restoration of Subgrade 3a land within Stage 1; Phase A and Stage 4; Phase D.

4.12 The typical profiles for the restoration of Subgrade 3a land rely on the very careful handling of the clayey textured but in situ permeable nature of the upper and lower type B soils. Great care will be required to maintain the permeable nature of this soil material.

4.13 The typical profile given for the restoration of Subgrade 3b is puzzling in that two separate very thin horizons of upper subsoil type B are proposed. It is likely that the second of these horizons is a misprint and should be lower

subsoil type B, however, the practicality of restoring land with a total of five horizons and with thicknesses as little as 25 mm is questionable.

4.14 The volumes of soil materials alongside the typical profiles are confusing. No mention is made as to what these volumes are for and if they are required for the restoration of the site to the specified quality. The volumes stated greatly exceed the maximum volumes of each soil type to be stripped as given in paragraph 3.5.6.

4.15 The code of practice at Section 4 of the RAC report is to be welcomed as it provides a list of the guidance to be followed during the working of the site. Of particular note is the commitment to continue to survey the soils on site on a 50 m grid spacing prior to soil stripping (Section 4.4). However, paragraph 4.3.3 states that MAFF have been consulted and their comments taken into account. This has not always been the case, as from the details provided by the Environmental Statement and particularly the RAC section not all of MAFF's comments have been taken into account, particularly with regard to the provision of auger boring and soil pit data.

5. CONCLUSIONS

- Differences exist as to the extent of 'best and most versatile land between RAC and ADAS.

- The absence of auger boring and soil pit data make interpretation of RAC's findings on land quality and soil types difficult.

- Differences exist between the extent of the soil types as mapped by RAC and those found in the ADAS survey.

- The principle of the direct placement of soils wherever possible should be welcomed.

- Methodology for determining the criteria regarding soil moisture content and soil handling requires additional detail.

- The handling of clay textured soil materials has to be such as to avoid compaction and/or the creation of slowly permeable layers otherwise the proposed land qualities will not be achieved.

- The detailed restoration profile for Stage 4; Phase D of Subgrade 3a land is likely to result in land of only Subgrade 3b quality. The limited information given on detailed restoration profiles therefore calls into question the extent of high quality restoration within the site.

- There is confusion as to the required soil volumes for the restoration of the site as volumes given with the typical restoration profiles greatly exceed the quantities of soil to be stripped.

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