Please see Annex AP6 for supporting information, and the “Introduction” for Health and Safety considerations and advice on the use of the guidance.

1. **Are there any reports relating to the soil resources and land quality available for the site**
   - a. has an ALC been undertaken on the site
   - b. has a soil report been prepared
   - c. have surveys been undertaken to an acceptable standard
   - d. how do the reports relate to each other

2. **Do the working proposals have regard to the above reports**
   - a. do the proposed soil stripping depths, areas / phases have regard to differing soil units
   - b. is it apparent whether the soil information has been considered in formulating the working proposals
   - c. are there enough soil storage areas shown to accommodate both the overall expected volumes of stored soil but also the differing types
   - d. is there a single soil handling document or strategy

3. **Does the site include best and most versatile quality agricultural land, a mix of qualities, and / or areas of ecological interest**

4. **Is the soil also identified as the mineral resource**
   - a. do the calculations for available mineral reserves include the subsoil
   - b. is there any physical difference between the subsoil and underlying mineral
   - c. does the mineral also contain resources which are well suited as soil-forming materials

5. **Has the land been previously worked and can it be improved**
   - Is the potential of the existing soil profile limited through:
     - a. shallowness
     - b. poor drainage
     - c. chemical imbalances
     - d. physical factors such as stoniness, compaction

6. **What resources are identified for restoration**
   - a. is the site self balancing
   - b. is there a deficit – how is this to be rectified
   - c. are differing soil profiles required for differing intended after-uses
For more detailed information see:
- Agricultural Land Classification of England and Wales (MAFF 1988)

Cross references:
- AP 8, 9, 10
1. Are there any reports relating to the soil resources and land quality available for the site.

The ALC provides a method for assessing the productive quality of agricultural land. The Classification provides a basis to consider development when proposed on agricultural land or other ‘greenfield’ sites that could grow crops. The Classification is based on the extent to which physical and chemical characteristics impose long-term physical limitations on agricultural use. Factors affecting the grade are climate, site and soil characteristics, and the important interactions between them (soil wetness and droughtiness). It is the overriding limitation that results in the grading of the land. There are five grades, with Grade 3 subdivided into Subgrades 3a and 3b. The ‘best and most versatile land’ is defined as Grades 1, 2 and 3a by policy guidance (see PPS7 Sustainable Development in Rural Areas (ODPM August 2004 Paragraph 28). A ‘Provisional’ Series of maps was published on an Ordnance Survey base at a scale of One Inch to One Mile in the period 1967 to 1974, to provide general strategic guidance on land quality for planners. Short reports accompanied each map sheet (which are now withdrawn). Maps are now available at a scale of 1:250,000. These maps are not sufficiently accurate for use in the assessment of individual fields or development sites, and should not be used other than as general guidance.

a. has an ALC been undertaken on the site
   Information based on detailed ALC field surveys in accordance with current guidelines should be definitive. The developer should carry out a survey of the site to provide a detailed inventory of the soil and potential soil-forming materials (including topsoil and subsoil depths), and to provide an assessment of the quality of the land. It is important that this information is accurately prepared at the planning application stage, to avoid potential problems with future working and provide the basis of the proposals for handling the soil in the site working and restoration scheme.

b. has a soil report been prepared
   A soil survey would examine the soil profile and depth, soil texture, stoniness, soil structure, bulk density, soil drainage, available water capacity and nutrient status and chemical characteristics. Soil reports and ALC grading normally come from the same site survey.

c. have surveys been undertaken to an acceptable standard
   The survey should be undertaken by a competent person, such as a member of the IPSS etc. Such surveys require specialist knowledge and reports need to be in accordance with the quality, terminology and methodology within the published ALC guidelines. Maps are normally produced on an Ordnance Survey base at a scale of 1:10,000 for detailed work. ALC field surveys are a time-consuming process and should be initiated well in advance of planning applications. ALC surveys are undertaken by trained field surveyors using hand-held augers to examine soil to a depth of 1.2 metres, at a frequency of one boring per hectare for a detailed assessment. This is usually supplemented by digging occasional soil pits (by hand) to inspect the soil profile in representative ALC grades and soil
types. This provides the detail for the physical characterisation. Information obtained by these methods is combined with climatic and other data to produce the ALC map and report. The ALC reports should follow a standard format detailing the purpose of the report, who has undertaken the report, when undertaken, the land use / crops, a summary of the findings, the factors influencing the ALC grade (climate, site, geology and soil), and the details of the Classification (including maps showing distribution of the grades, position of auger borings and pits).

d. how do the reports relate to each other
The soil and land quality reports should also be considered in conjunction with any geological, hydrological studies or ecological reports. An ALC report details what the land quality is, whilst a soil report details not just the existing quality, but the physical characteristics of the differing soil resources, and how each should be dealt with through site working and restoration stages. The soil report enables soil and land quality comparisons to be made at the end of site working, and will form the basis of ensuring that the required standards have been met on the completion of the restoration and aftercare periods. The visual appearance, although important, can be misleading, especially on blighted or unmanaged land.

2. Do the working proposals have regard to the above reports

a. do the proposed soil stripping depths, areas / phases have regard to differing soil units
At all stages in the preparation of the site working proposals and subsequently the submission of a planning application, consideration should be given to the soil aspects. Any soil or land quality reports that are submitted with the application should clearly identify what exists on the site. However, in addition, the working proposals must clearly demonstrate that these findings have been incorporated into the scheme. The intended soil stripping depths will arise from the soil information. The proposals for using available soil and soil-forming materials to get the best possible restoration, ways of keeping different soil apart, methods of handling the soil (including proposals to minimise dust nuisance), the location and height of soil bunds and how long they will be present rely on the interaction and understanding of the original soil information. The proposals for replacing soil should include the intended location, depth and composition of the reinstated soil profiles, and the contours of the restored land. This should enable the likely land quality, following restoration to be considered against the existing ALC information. This would assist the MPA, at the application stage, in considering any effect the proposal may have upon both soil resources and land quality aspects.
b. is it apparent whether the soil information has been considered in formulating the working proposals
The reports would also highlight possible different working proposals for any differing soil resources. For example, clay soil retains more water than other textures, even when at the limit of drying by plants, and is easier to smear and damage. Sandy soil can normally be worked much earlier and later in the year than other types, because it does not retain much moisture and the loss of what little structure it has, does not severely affect permeability. These factors could influence the soil handling techniques, reinstatement proposals and subsequently the aftercare measures.

c. are there enough soil storage areas shown to accommodate both the overall expected volumes of stored soil but also the differing types
For sites containing a variation of soil, such as major textural differences, it will be desirable to require separate stripping (and storage and restoration) of these materials. The surface area for soil storage increases significantly if differing soil types have to be kept separate. An indication of the proposed dimensions and therefore, the intended volumes to be stored within each soil bund, should be clearly stated within the documents, together with a clear indication as to the type of soil each bund is to accommodate. The volumes and locations of the differing soil types will have to be carefully considered alongside the eventual restoration objectives for the differing parts of the site.

d. is there a single soil handling document or strategy
The information gained from the site investigations should be combined, with the site working and reinstatement proposals, in a single ‘Soil Handling Strategy’ document to aid identification and instruction during the site operations.

3. Does the site include best and most versatile quality agricultural land, a mix of qualities, and / or areas of ecological interest

Whatever the existing land quality, if land is going to be restored for agricultural use or to safeguard it’s long-term agricultural potential, soil damage must be minimised and the land restored, wherever practical, to its original quality or better. Within this overall aim there is a need to ensure that soil which may have a particular ecological significance (e.g. a seed bank from woodland soil or soil of low nutrient status), are dealt with appropriately within the soil strategy. It is important to ascertain whether re-creation of the exiting habitats is appropriate, or whether improvement is possible without compromising other restoration objectives. Similar soil on a site does not necessarily lead to the same ALC grade, as land quality also includes non-soil related factors such as slope or flood risk. A full understanding of the existing land qualities and how the existing soil and landform influence this is required in order to understand the existing land uses. This understanding should ensure informed decisions on the most appropriate after-uses and how to achieve them.
4. Is the soil also identified as the mineral resource

a. do the calculations for available mineral reserves include the subsoil
   There are instances, particularly associated with clay and sand and gravel workings, where the soil profile includes material identified both as subsoil within the Statement of Physical Characteristics Report, and as a commercially exploitable mineral within the geological report. If the calculations for available mineral reserves includes the subsoil, then the applicants should clarify how soil-forming material or other soil will be utilised in order to avoid prejudicing the restoration proposals.

b. is there any physical difference between the subsoil and underlying mineral
   It is possible for the subsoil to be the same as the underlying mineral. In these circumstances, the subsoil is still vital for the growth of crops through drainage, water holding capacity and the provision of nutrients. The soil structure is likely to be better developed in the subsoil than in the mineral due to rooting and biological activity. It is important to ascertain the resulting likely land quality following from the applicant’s proposals.

c. does the mineral also contain resources that are well suited as soil-forming materials
   The mineral may also contain resources that are well suited as soil-forming materials. The geological report may identify likely layers. Wherever such materials are proposed, their properties should be established by laboratory analysis of particle size, nutrient availability and pH. On-site quarry and waste products are already widely used as soil-forming materials but in each individual case, their suitability should be assessed by prior analysis. If suitable alternative material is not available, or not in sufficient quantities or at the right time, then either the restoration proposals should be re-examined or the suitable quantities of the ‘mineral’ retained for use as a ‘subsoil’. Soil-forming materials are likely to be required for hard rock quarries, landfill sites and some other long-term quarry operations.

5. Has the land been previously worked and can it be improved

Is the potential of the existing soil profile limited through:

a. shallowness
   The understanding or restoration techniques has improved and the reworking of a previously restored site may present an opportunity to correct previous limitations. These limitations may also be addressed in some sites where previous working has not occurred, but the potential for land improvement exists. The potential of the existing soil profile may be limited through shallowness. This may be overcome through the identification of additional soil-forming material, or the change of the land uses upon restoration, to enable the existing resources to be concentrated within some areas and other non-soil dependant uses (e.g. water
features, ecological areas or hard development) to be identified. Disturbed land is a complex issue where a soil specialist should be employed to report on existing limitations and what, if anything, can be done to improve the situation.

b. poor drainage
This can be addressed through changing slopes or drainage patterns. The reworking of the site could enable the surface water and groundwater levels in the soil profile to be successfully controlled. The reconsideration of the restoration objectives could ensure that areas that frequently flood in a river floodplain are returned to nature conservation or recreational uses, to enable slightly higher areas to be used for agriculture purposes.

c. chemical imbalances
These may be due to previous on-site industrial uses, the regular flooding by contaminated water, or historic applications to agricultural land of excessive concentrations of some industrial wastes. In some rare instances, chemically imbalanced soil may need to be buried at depth and replaced in the restoration proposals by alternative soil-forming materials.

d. physical factors such as stoniness, compaction
Physical restrictions such as stoniness or compaction may not be economically feasible to remedy within normal agricultural activities. However, the reworking of the land should enable these factors to be adequately addressed.

6. What resources are identified for restoration

a. is the site self-balancing
The application documents should identify whether the site is self-balancing or whether the restoration relies on importing materials. Ideally, restoration should only be carried out using on-site soil unless there are proven shortages.

b. is there a deficit - how is this to be rectified
Soil should only be imported where the source of the imported soil is known, quality can be checked and precautions taken to prevent the spread of plant and animal diseases. Soil-forming materials may be available on the site, or may be recoverable from the overburden, to assist in creating suitable soil profiles for less demanding after-uses. The applicant can identify soil-forming materials through examining the soil and geological reports. The restoration plan can be adapted to utilise the available soil resources by optimising the areas of different land uses.

c. are differing soil profiles required for differing intended after-uses
In any calculations relating to soil quantities, it is important to remember that some soil types are more appropriate for specific uses on the site. Soil is not an homogeneous material that is interchangeable - differing soil profiles are often required for differing intended after-uses. Normally, recommended restoration depths are for 30cm of topsoil and 90cm of subsoil. Where shortages prevent
these depths being achieved, it may be desirable to increase soil depth by reducing the areas to be restored to agriculture. If lower quality agricultural restoration is being considered, then shallower depths are acceptable, although alternative land uses may also be an option. It should be noted that if the natural soil is shallow, then there is no obligation to restore to a depth of 120cm. The advice of a soil specialist should enable the best use to be made of the soil resources, taking account of the proposed after-uses.