

GUIDANCE TO RECORDING OF QUATERNARY SEDIMENTS

Introduction

- The recording form is intended to be used when examining possible Quaternary sediments – **NOT** landforms or process sites.
- When describing a section with several identifiable units, use one form for each unit.
- The form is intended to ensure that you collect all the data needed to enable you to make preliminary judgements about the deposit, using the guidance given. If you are relatively unfamiliar with Quaternary sediments you should ask workers with a familiarity with them to check your conclusions or to make a diagnosis based on the evidence collected.

Steps in Survey

- Step 1: Walk / recce the area around the deposit so that you know its full extent.
- Step 2: prepare a sketch of the position of the site in the overall landscape (landform), remembering to show the scale. Using the same terminology as you have used in the diagrammatic section wherever possible, note the position in the landscape at the head of page 1 of the form. This may help you considerably in determining the type of deposit.
- Step3: Identify the upper limit of the clearly identifiable solid rock; any Quaternary sediment / soil will be above this boundary. Sediments are rarely likely to be >2m in thickness at hard rock quarries, but may be thicker elsewhere. Beware of “Made Ground”.
- Step 4: Starting at this boundary with the solid, carry out a preliminary assessment of the unconsolidated sediment and identify major breaks in the sequence (criteria – colour, clast size or shape, degree of sorting, bedding, sedimentary structures, obvious fossils, etc.). Treat sediment between these provisional boundaries as a ‘unit’. Sketch the full section on one survey sheet, labelling each unit.
- Step 5: Using the form, prepare a description for each unit. The descriptions and photographs of various Quaternary sediment types in the guidance notes may help you in making your judgements.
- Step 6: Record the section photographically including, if possible, the whole section, plus each unit, details of interest and anything which poses problems to you. Always show the SCALE of the image.

Note:

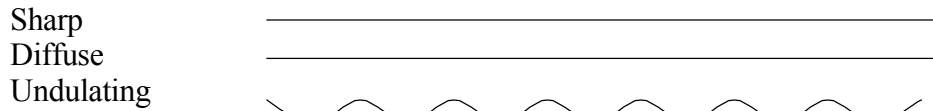
Several versions of the landscape and section sketch forms are provided – half page, full page, landscape and portrait options. Use the most appropriate for the location you are describing.

Nature of contact with the unit or bedrock below

A merging boundary may suggest a gradual change in depositional circumstances or a weathering profile; a sharp boundary could indicate an erosional contact. In either case it may be helpful to know whether this contact is planar or shows undulations. Therefore, you may need to tick more than one box.

Symbols

When specifying the nature of boundaries use the following symbols on the sketch section:



Structures

- Undulating contacts may commonly occur between major units, but can also be found within units. Commonly they may be channel structures, but may be due to loading or dewatering which causes the beds to 'warp'.
- Cross bedding – sedimentary layering within a 'bed' that is inclined at an angle to the main bedding plane. Indicative of deposition by rivers or wind.
- Laminations refer to distinct, thin 'beds' of <10mm thickness.

Bedding condition

Indicate which is the prevalent type in this unit. Be aware of unfamiliar forms of disturbance, notably cryoturbation, which results in involutions (upthrusts of lower material injected into layers above). Also, bedding disturbance can be associated with loading of moist, unconsolidated sediment. See also Structures (above).

Clast Angularity

Refer to the grain characteristic card for a pictorial representation of each class.

Clast Shape

Note whether clasts are tabular in shape. The clast shape and angularity are related to the structure, hardness and weathering properties of the source material, together with the clast transport history.

Clast Lithologies

Describe in lithological terms; add a stratigraphic identifier only if you are familiar with the rock type and confident in your identification.

Clast Size

Record the size range of clasts >2mm in diameter. Also record the diameter of those clasts which occupy the greatest area of the face in the described unit. Also note if the dominant clast size decreases or increases with height in the unit (fining up or fining down respectively).

Clast Orientation

Imbrication indicates clasts (usually discoid) arranged en echelon and packed in close juxtaposition.

Preferential alignment indicates clasts that show a consistent orientation.

Sorting

You are asked to make a very qualitative judgement.

Matrix Texture

Assess for dominant fraction (using 'feel' test demonstrated in lab.); if more than one fraction is present record e.g. sandy clay, where the noun (clay) is the dominant fraction with subsidiary sand.