2. Deriving the Geomorphological Index

The Geomorphological Index will be composed of two main parts: a measure of the inherent stability of the channel based on its classification using Rowntree and Wadeson's hierarchical scheme (Rowntree and Wadeson, 1999) and a measure of the observed channel condition. Refernce has also been made to the classification system developed by Rosgen (1996) for North American rivers. It thus aims to combine the approaches of the British River Habitat Survey (RHS) (Raven et al, 1998) which emphasises the structure of the river, with that of the Australian Index of Stream Condition (ISC) (Waterway and Floodplain Unit, 1997) which emphasises the condition of the river. This approach facilitates the rational interpretation of observed changes. Some channels are inherently unstable and evidence of erosion or deposition represents the natural condition of the channel. It would also be expected that the condition of the site would change between monitoring visits. A lowland sand bed river is a case in point. Other channels are inherently more stable so that any evidence of erosion or deposition would be cause for alarm. It is envisaged that the index will consist of five components: the river zone and the channel type (classification components); the extent of bank erosion, the condition of the bed (erosion or deposition) and the degree of direct structural modification due to human impact (condition components).

Experience whilst developing the index has shown that it is no easy task to assign an inherent stability to a channel. It is recommended therefore that the programme evolves in four stages:

- A full geomorphological assessment is derived from the baseline survey. The site is allocated to a river zone and channel type. The data is stored in a data base.
- An assessment of channel condition is obtained at regular intervals during routine monitoring; this data is stored in a data base.
- Analysis of the data base is carried out to evaluate the characteristic channel condition for different river zone/type combinations.
- Development of geomorphological indices of channel condition rated in relation to channel type and river zone classification.