

descriptions of stereonet use are also given in this section along with reproductions of key extracts.

## 2. STRUCTURAL OBSERVATIONS

Structural measurements and observations from the detailed study of the Haul Road and Tailings Dam areas help define the overall geometry of folding structures in the Hellyer area. This data allows some refinement of the outcrop interpretation map and is important in the construction of the 3 dimensional model.

Bedding data from all areas at Hellyer is well correlated into several groups. These define the orientations of deformed bedding planes relating to the various folding events. Interpretation of this data is discussed in the following section. The distribution of the joint orientations also shows patterns relating to the major folding and faulting events, as discussed in section 2.2.

### 2.1 FOLD STRUCTURES

The following interpretation of fold structures is based mainly on data collected to the west of the Hellyer Anticline. The strain in this area is relatively low and it is therefore assumed to represent a good record of structure formed prior to the events producing the higher strain and more complex deformation along the Hellyer to Que River structural zone. A comparison of this interpretation of the structural events and previous interpretations is discussed in Section 5.

Within the immediate area of the structural study there is interpreted from the outcrop distribution to be three main fold closures, as shown in Figure 1, which shall be referred to as the Tailings Dam Syncline (TDS), the Hellyer Anticline (HA) and the Portal Syncline (PS). The structural data used in this project provides a reasonably similar picture of these fold closures as does the interpretation from outcrop distribution. However, the geometry of these folds, as defined from the plots of bedding plane orientations, shows a highly irregular style of folding. Each of the three closures has entirely different fold styles and orientation of limbs. These are described in detail later in this section.

Away from the Hellyer anticline, and the other complex structures around the mine area, it is possible to identify a second folding event which pre-dates the main N trending axis of folding already mentioned. Evidence for this