Electrical resistivity and natural gamma logs obtained from 70 boreholes in Lincolnshire and South Humberside can be interpreted in terms of lithology and show excellent agreement with the detailed lithostratigraphical divisions of the Chalk, obtained by Wood & Smith (1978) from the study of surface exposures. As, to the best of our knowledge, this sequence is complete, for the first time a direct correlation between continuous borehole logs and a detailed lithostratigraphical succession is possible. Important marl bands and some erosion surfaces and flint bands can be identified on the resistivity and gamma logs and traced over most of the study area. Stratigraphical positions of the logged boreholes can be determined and formation thicknesses measured. This information has enabled the construction of an accurate contour map of the elevation of the base of the Chalk and the eastward extension of the Caistor Monocline has been identified.