Sample: S381; TSC33697

Hand Specimen:
A pale to medium grey, fine-grained rock with a definite schistosity.

Staining with cobaltinitrite shows no potash feldspar.

Thin Section:
A visual estimate of the minerals is as follows:

	%
Sericite	55-60
Chlorite	15-20
Quartz (and ?plagioclase)	15-20
Pyrite	2-3
Opaque iron oxide	2-3
Apatite	trace
Leucoxene	trace
Calcite	trace

This rock has a fine-grained matrix which contains a large proportion of orientated sericite, minor chlorite and local areas in which there is some fine-grained quartz and possibly plagioclase. This matrix is not uniform and in places it has streaky and small-scale lenticular textures. In many areas it contains dispersed, tiny opaque crystals which are either pyrite or magnetite but, without a polished section these cannot be positively identified.

Scattered through this generally fine-grained matrix there are some elongate patches of sericite, some irregular patches of chlorite and a few composed of intergrown chlorite and sericite. It is possible that these represent completely recrystallized phenocrysts and lithic fragments in which sericite has replaced plagioclase and the chlorite has replaced a mafic mineral or minerals but this cannot be confirmed. However, in a few patches of chlorite there are relict textures of leucoxene suggesting the former presence of crystals of an iron-titanium oxide mineral up to 0.5 mm in size. Some of the patches of chlorite also contain grains of pyrite and one contains a crystal of apatite. There are also a few separate crystals of slightly turbid apatite 0.3 to 0.8 mm in size scattered through the matrix and one angular fragment of apatite 0.6 mm long.

Small grains and aggregates of pyrite and opaque iron oxide, possibly magnetite, are scattered throughout the rock and many of these are about 0.5 mm in size. A few of these opaque aggregates are almost spherical and there is one spherical globule about 0.6 mm in diameter composed of fine-grained iron oxide and chlorite in about equal proportions with the opaque oxide concentrated in subparalle, thin bands. This globule is almost spherical and has a sharply defined boundary.

There are a few areas containing recrystallized or migratory quartz and there is also a quartz vein 0.3 to 0.4 mm thick.

Conclusion:
This was very probably a fine-grained tuff or tuffaceous sediment which may originally have contained a proportion of vitric material. It has slightly anomalous iron oxide and sulphide, some of which occurred as small globules and there are also a few crystals and fragments of apatite.