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Petrography and Depositional Features of the Lower Argillaceous Series; Dunstan Farm, Chimanimani: Possible Charleswood Diamondiferous Grits Extension

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This research presents a study conducted on petrographic and depositional features of the Lower Argillaceous Series [Formation] of the Umkondo Group as exposed on Dunstan Farm, Chimanimani in order to delineate the lithologies and to determine whether the study area under investigation is a possible southern extension of the Charleswood diamondiferous grit unit. Diamond mineralization is found in coarse grits, which strike north-south across Charleswood Farm. Further south on Dunstan Farm, surface geological mapping was undertaken to identify any possible extension of this grit unit. The methodologies used include a desktop study, surface geological mapping, X-Ray fluorescence analyses, petrographic analyses, heavy mineral separation analyses, data analysis and interpretation. Within the study area, six lithologies were identified namely dolerite, mudstone, sandstone, quartzite, grit and shale. The high titanium values suggest the Umkondo sediments to have a basic igneous rock parentage. The study area was subjected to Greenschist Facies metamorphism. The white quartzite of Watson, (1969) is sandstone whilst his grey quartzite is the grit unit. The coincidence of analytical comparison of the grit unit from north to south, including petrographic and heavy mineral analyses, suggest that the study area is a possible southward extension of the Charleswood diamondiferous grit unit.