I present a general framework where the effective field theory of single field inflation is extended by the inclusion of operators with mass dimension 3 and 4 in the unitary gauge. These higher dimensional operators introduce quartic and sextic corrections to the dispersion relation. We study the regime of validity of this extended effective field theory of inflation and the effect of these higher dimensional operators on CMB observables associated with scalar perturbations, such as the speed of sound, the amplitude of the power spectrum and he tensor-to-scalar ratio. Tensor perturbations remain instead, unaltered.