ABSTRACT. We prove that a finite topology properly embedded Bryant surface in a complete hyperbolic 3-manifold has finite total curvature. This permits us to describe the geometry of the ends of such a Bryant surface. Our theory applies to a larger class of Bryant surfaces, which we call quasi-embedded. We give many examples of these surfaces and we show their end structure is modelled on the quotient of a ruled Bryant catenoid end by a parabolic isometry. When the ambient hyperbolic 3-manifold is hyperbolic 3-space, the theorems we prove here were established by Collin, Hauswirth and Rosenberg, 2001.