

The recent construction of a genus-one helicoid verified the existence of a second example of a complete, embedded minimal surface with finite topology and infinite total curvature in  $\mathbb{R}^3$ . We determine the conformal structure and asymptotic Weierstrass data of all surfaces with these properties. Using this structure and the asymptotics, in the case  $g = 1$  we establish the existence of an orientation preserving isometry.