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Casey Douglas* (cjd@rice.edu), Math Department – MS 136, Rice University, 6100 S. Main St., Houston, TX 77005. *Perturbed, Genus One Scherk Surfaces and Their Limits.*

The singly periodic, genus one helicoid is conjectured to be the limit of a one parameter family of doubly periodic minimal surfaces referred to as Perturbed Genus One Scherk Surfaces. Using elementary elliptic function theory, we show that such surfaces exist, solving a two dimensional period problem by perturbing a one dimensional problem. Using flat structures and Teichmuller-theoretic techniques, we then verify the conjecture. (Received January 20, 2009)