Lemma (Proof by Contrapositive): $\Gamma, \neg B \vdash \neg A \implies \Gamma, A \vdash B$

$$\frac{ \begin{array}{c|c} \overline{\Gamma,A \vdash B} & ^{\text{L} \supset} & \overline{\Gamma,A,\bot \vdash B} & ^{\text{id}} \\ \hline \underline{\Gamma,A,\neg B \vdash B} & ^{\text{L} \supset} & \overline{\Gamma,A,B \vdash B} & ^{\text{id}} \\ \hline \Gamma,A \vdash B & \end{array}}_{\text{EM}}$$