Bounds for the torsion subgroup of elliptic curves over fields with bounded ramification.

Let $E$ be a semi-stable elliptic curve defined over $\mathbb{Q}$, and fix $N \geq 2$. Let $K/\mathbb{Q}$ be an algebraic Galois extension of $\mathbb{Q}$ whose ramification indices are all at most $N$. We show that there exists a computable bound $B(N)$, which depends only on $N$ and not on the choice of $E/\mathbb{Q}$ or $K$, such that the size of the torsion subgroup of $E(K)$ is always at most $B(N)$. The bound will be given explicitly during the talk, and some examples will be provided. This is joint work with Benjamin Lundell. (Received September 20, 2009)