In the theory of $Q$-polynomial distance-regular graphs, a role is played by the positive part $U_q^+$ of the quantum group $U_q(\widehat{sl}_2)$. The algebra $U_q^+$ has a presentation with two generators $A, B$ that satisfy the cubic $q$-Serre relations. Recently we introduced a type of element in $U_q^+$, said to be alternating. Each alternating element commutes with exactly one of $A, B, qBA - q^{-1}AB, qAB - q^{-1}BA$; this gives four types of alternating elements. There are infinitely many alternating elements of each type, and these mutually commute. We use the alternating elements to obtain a central extension $\mathcal{U}_q^+$ of $U_q^+$. We then use the alternating elements to obtain a PBW basis for $\mathcal{U}_q^+$. (Received September 09, 2019)