$$B_{1} = \begin{pmatrix} 1 \\ 1 \\ c \\ c \end{pmatrix}, \quad B_{2} = \begin{pmatrix} 1 \\ d \\ 1 \\ d \end{pmatrix},$$

$$B_{3} = \begin{pmatrix} 1 - \frac{(a-1)(b-1)}{(c-1)(d-1)ab} & 1 & 1 & 1 \\ -\frac{(a-1)(b-1)(ad-1)(bd-1)}{(c-1)^{2}(d-1)^{2}a^{2}b^{2}d} & 1 + \frac{(ad-1)(bd-1)}{(c-1)(d-1)abd} & \frac{(ad-1)(bd-1)}{(c-1)(d-1)abd} & \frac{(ad-1)(bd-1)}{(c-1)(d-1)abd} \\ -\frac{(a-1)(b-1)(ad-1)(bc-1)}{(c-1)^{2}(d-1)^{2}a^{2}b^{2}c} & \frac{(ac-1)(bc-1)}{(c-1)(d-1)abc} & 1 + \frac{(ac-1)(bc-1)}{(c-1)(d-1)abc} & \frac{(ac-1)(bc-1)}{(c-1)(d-1)abc} \\ \frac{(a-1)(b-1)(ac-1)(bc-1)}{(c-1)^{2}(d-1)^{2}a^{2}b^{2}cd} & -\frac{(acd-1)(bc-1)}{(c-1)(d-1)abcd} & 1 - \frac{(acd-1)(bc-1)}{(c-1)(d-1)abcd} \end{pmatrix},$$

$$B_{4} = \begin{pmatrix} 1 - \frac{(a-1)(b-1)c}{c-1} & 0 & (d-1)ab & 0 \\ 0 & \frac{-abcd^{2}+acd+bcd-1}{(c-1)d} & 0 & -\frac{(ad-1)(bd-1)}{(c-1)d} \\ 0 & \frac{(acd-1)(bcd-1)}{(c-1)^{2}(d-1)ab} & 0 & \frac{abc-a-b+1}{c-1} & 0 \\ 0 & \frac{(acd-1)(bcd-1)}{(c-1)^{2}(d-1)ab} & 0 & \frac{abcd^{2}-ad-bd+1}{(c-1)d} \end{pmatrix}.$$