$$F'[\bar{x}]\phi = F(\bar{x}) \tag{1}$$

$$\begin{pmatrix} \Pi_N DF(\bar{x})\Pi_N & \Pi_N DF(\bar{x})(I-\Pi_N) \\ (I-\Pi_N)DF(\bar{x})\Pi_N & (I-\Pi_N)DF(\bar{x})(I-\Pi_N) \end{pmatrix} \begin{pmatrix} \Pi_N \phi \\ (I-\Pi_N)\phi \end{pmatrix} = \begin{pmatrix} \Pi_N F(\tilde{x}) \\ (I-\Pi_N)F(\tilde{x}) \end{pmatrix} \tag{2}$$