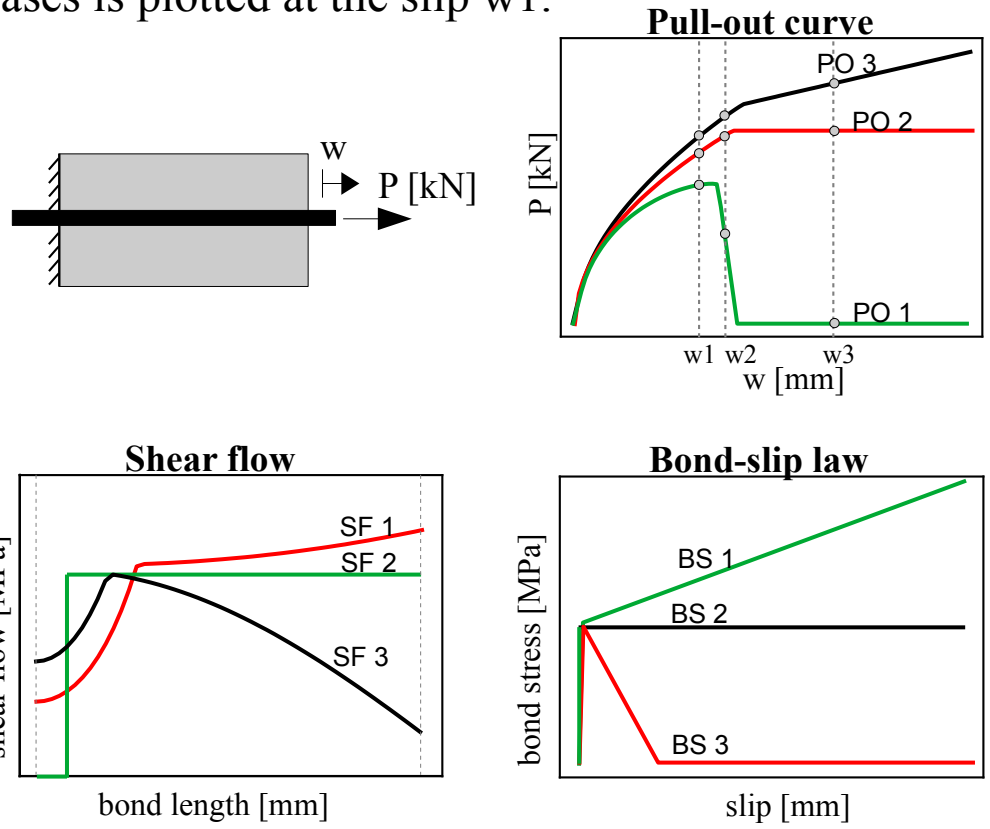
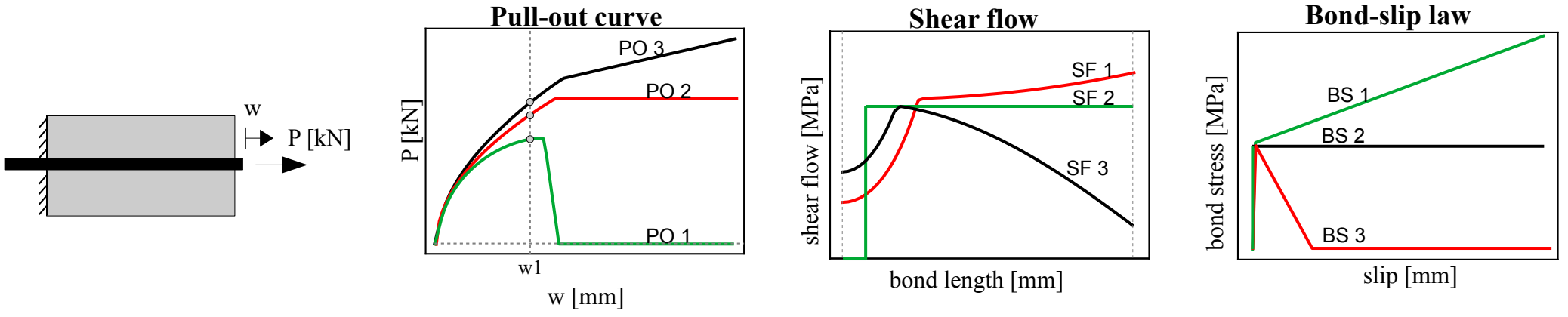
Pull-out curve versus shear stress profiles

For the displayed pull-out test, the pull-out curves are given for three different bond-slip laws.
The shear flow for the three cases is plotted at the slip w1.



a) Associate the pull-out curve to the corresponding bond-slip law and the shear profile.
b) Qualitatively plot the shear flow profiles in a single diagram at the control end slip equal to w2 and w3.
c) Assume that the behavior of the pull-out curve 1 is governed by damage, and the pull-out curve 3 is governed by plasticity, plot the unloading response at the slip w1 and w2.

Pull-out curve versus shear stress profiles

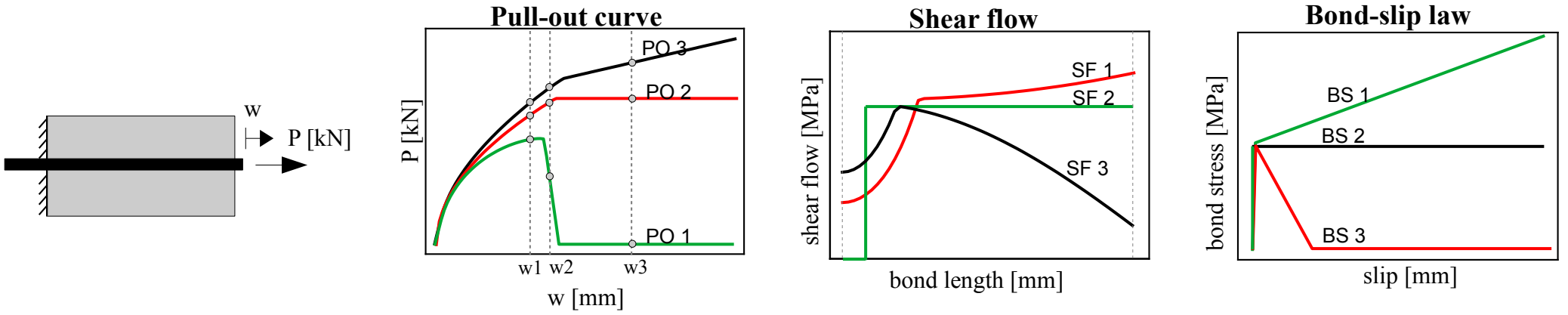


a) Associate the pull-out curve to the corresponding bond-slip law and the shear profile.

Solution:

Pull-out curve	Bond-slip law	Shear flow profile
PO 1	BS 3	SF 3
PO 2	BS 2	SF 2
PO 3	BS 1	SF 1

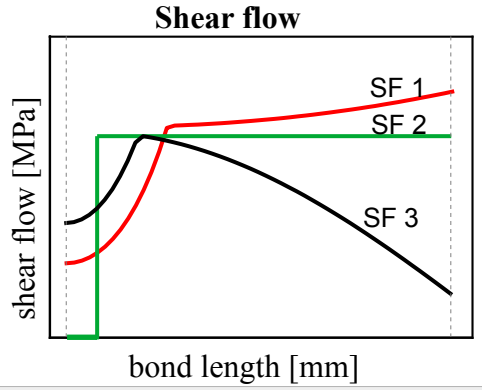
Pull-out curve versus shear stress profiles



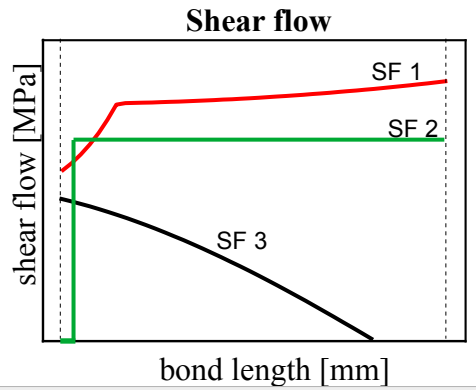
b) Qualitatively plot the shear flow profiles in a single diagram at the control end slip equal to w2 and w3.

Solution:

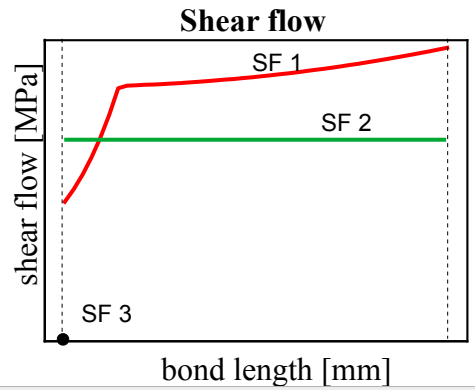
- **Stage w1**



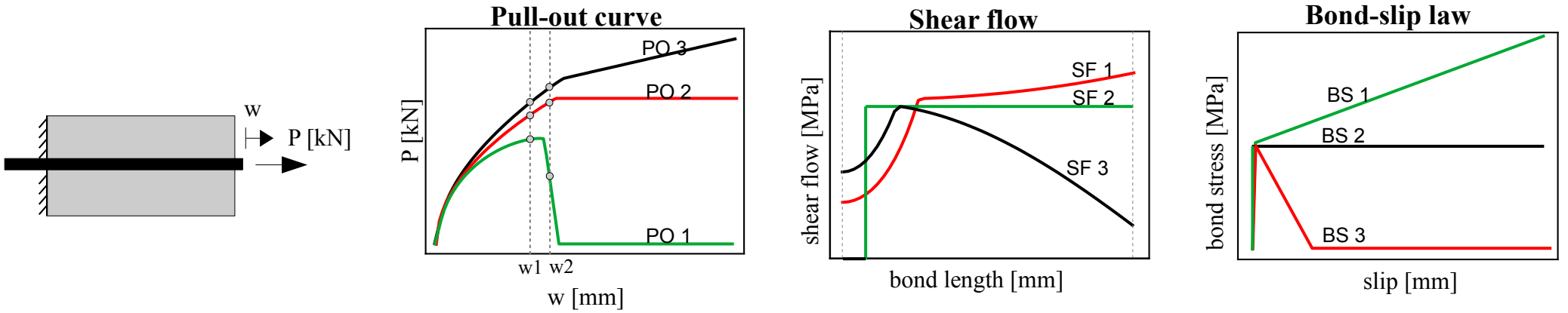
- **Stage w2**



- **Stage w3**



Pull-out curve versus shear stress profiles



c) Assume that the behavior of the pull-out curve 1 is governed by damage, and the pull-out curve 3 is governed by plasticity, plot the unloading response at the slip w1 and w2.

Solution: