For $I_o = 696$ A we have
$G_{\text{inner}} = 146.5$ T/m
$G_{\text{outer}} = -6.5$ T/m for
$G = 140$ T/m net gradient

Here we assume the shield coil runs in series with the inner quadrupole.

Coil outer surface has 78 mm OD.
Cold extraction line beam pipe.

Can just reach 12 mr total crossing angle.
Warm extraction line beam pipe.

- 20 mr @ L* = 3.5 m
- 15.5 mr @ L* = 4.5 m

But still maintain 20 mr for the baseline design at 3.5 m.