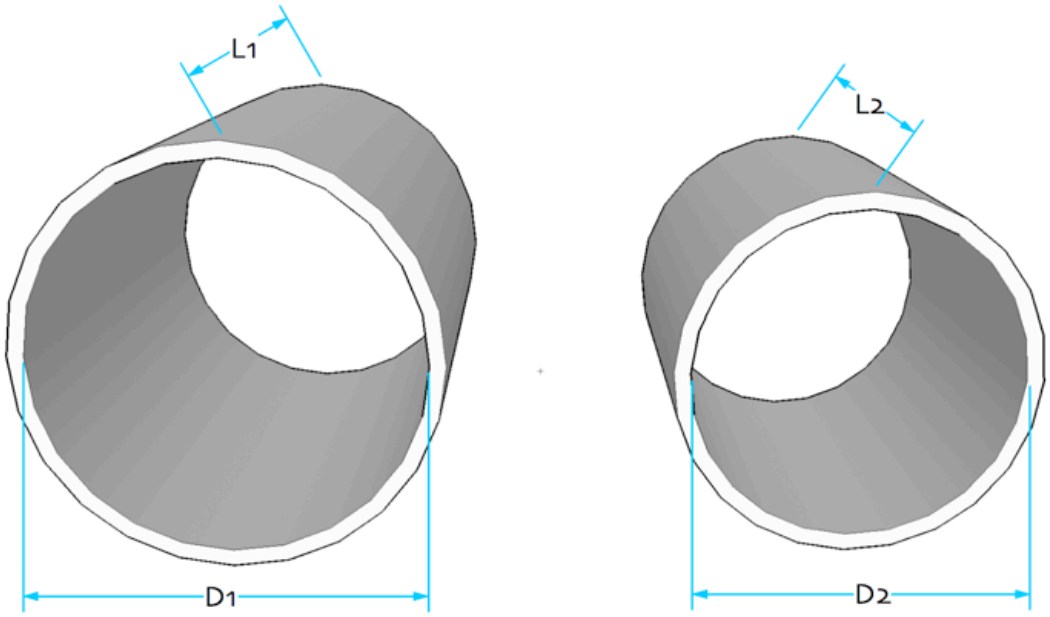

Given:

$\frac{L_1}{L_2} = \frac{A_1}{A_2}$ where L_1, A_1 are the original length and area, and L_2, A_2 are the new length and area

Then:

$$L_2 = L_1 \frac{A_2}{A_1} \quad \text{or} \quad A_2 = A_1 \frac{L_2}{L_1}$$

Since area is proportional to diameter squared:

$L_2 = L_1 \frac{{D_2}^2}{{D_1}^2}$ where D_2 is new diameter and D_1 is the original diameter.

If there is a large change in diameter, accounting for the end correction difference is recommended

$$L_2 = L_1 \frac{{D_2}^2}{{D_1}^2} + (D_2 - D_1)^2$$