(5) $E = \frac{q}{A \cdot \varepsilon_0} = \frac{1.0 \times 10^{-6}\ C}{2.0\ m^2 \times (8.85 \times 10^{-12}\ C^2/N \cdot m^2)}$

$= \boxed{5.6 \times 10^4\ N/C}$

(6) $E = 2\pi k\sigma \left(1 - \frac{x}{(x^2+R^2)^{1/2}}\right)$

$\sigma = \frac{3 \times 10^{-6}}{\pi \times 0.3 \times 0.3} = 1.06 \times 10^{-5}$

$E_x = 2\pi k\sigma \left[1 - \left(\frac{x}{\sqrt{x^2+R^2}}\right)\right]$

$= 2\pi (9 \times 10^9\ N \cdot m^2/C^2)(1.06 \times 10^{-5}) \left[1 - \frac{0.15}{\sqrt{(0.15)^2+(0.3)^2}}\right]$

$= 331349 = \boxed{3.31 \times 10^5\ N/C}$