$$C_1 = \frac{3ql}{4EI}$$

$$C_2 = -\frac{ql^2}{4EI}$$

$$C_3 = 0$$

$$C_4 = 0$$

$$v_t = -\frac{ql z^3}{4EI} - \frac{ql^2 z}{4EI}$$

$$\varphi(z) = -\frac{3ql z^2}{4EI} + \frac{ql^2}{2EI} z$$

$$M(z) = -\frac{3}{2} ql z + \frac{ql^2}{2}$$

$$T(z) = -\frac{3}{2} ql$$