Since $\rho = \rho(t_{ret}) = \rho\left(t - \frac{R}{c}\right)$ it will be a solution to the 1-D wave equation

$$\frac{1}{c^2}\frac{\partial^2 \rho}{\partial t^2} = \frac{\partial^2 \rho}{\partial R^2} \qquad (\text{Eqn } 9.13)$$

Exercise for you: Verify explicitly that this is the case!

Substituting for (9.13) into (9.12) and then into (9.11) we obtain

$$\nabla^2 V_2 = \frac{1}{4\pi\varepsilon_0}\int_{v_2} \frac{1}{R}\frac{1}{c^2}\frac{\partial^2 \rho}{\partial t^2}\, d\tau' = \frac{1}{c^2}\frac{\partial^2}{\partial t^2}\underbrace{\left[\frac{1}{4\pi\varepsilon_0}\int_{v_2} \frac{\rho(\underline{r}', t_{ret})}{R}\, d\tau'\right]}$$

$= V(\underline{r}, t)$ as v_1 becomes infinitesimally small

$v_2 \to V$ the entire space

$\therefore$ we can write

$$\nabla^2 V_2 = \frac{1}{c^2}\frac{\partial^2 V}{\partial t^2} \qquad (\text{Eqn } 9.14)$$