(5-37) $$P_{ii} = \frac{\sigma_i}{\Delta_i} \int_{x_{i-1/2}}^{x_{i+1/2}} dx \int_{x_{i'-1/2}}^{x_{i'+1/2}} dx' \frac{1}{2} E_1\left[\tau\left(x, x'\right)\right]$$

(5-38) $$P_{ii} = 1 - \frac{1}{2\sigma_i \Delta_i}\left[1 - 2E_3\left(\sigma_i \Delta_i\right)\right]$$

(5-39) $$P_{ii'} = \frac{1}{2\sigma_{i'}\Delta_{i'}}\left[E_3\left(\tau_{ii'}\right) - E_3\left(\tau_{ii'} + \sigma_i\Delta_i\right) - E_3\left(\tau_{ii'} + \sigma_{i'}\Delta_{i'}\right) + E_3\left(\tau_{ii'} + \sigma_i\Delta_i + \sigma_{i'}\Delta_{i'}\right)\right]$$
$$\text{if } i \neq i'$$

where

$\tau_{ii'} = \tau\left(x_{i+1/2}, x_{i'-1/2}\right)$ is the number of mean free paths in the space BETWEEN the two cells (for example, zero for cells that are right next to each other, otherwise the sum of the mean free path thicknesses of all intervening cells.)