Equations using MLE method for fitting a straight line to a series of data with uneven errors

Given a series of "N" measurements $\{y_i\}$ of a quantity "y" of as we vary "x" through the points $\{x_i\}$, respectively, and where the data are expected to have the linear form "$y = mx + b$", we can find the most probable estimates, or best estimates using MLE method, for the slope m ($\hat{m}$) and the intersect b ($\hat{b}$) as (Eq. 6.12 Bevington):

$$\hat{m} = \frac{1}{\Delta}\left(\sum \frac{1}{\sigma_i^2} \sum \frac{x_i y_i}{\sigma_i^2} - \sum \frac{x_i}{\sigma_i^2} \sum \frac{y_i}{\sigma_i^2}\right)$$

$$\hat{b} = \frac{1}{\Delta}\left(\sum \frac{x_i^2}{\sigma_i^2} \sum \frac{y_i}{\sigma_i^2} - \sum \frac{x_i}{\sigma_i^2} \sum \frac{x_i y_i}{\sigma_i^2}\right)$$

$$\Delta = \sum \frac{1}{\sigma_i^2} \sum \frac{x_i^2}{\sigma_i^2} - \left(\sum \frac{x_i}{\sigma_i^2}\right)^2$$

Where "σ_i" is the standard deviation of a particular measurement point "y_i". The errors in the estimated parameters $\hat{m}$ and $\hat{b}$ are (Eq. 6.21-22 Bevington)::

$$\sigma_m^2 = \frac{1}{\Delta} \sum \frac{1}{\sigma_i^2}$$

$$\sigma_b^2 = \frac{1}{\Delta} \sum \frac{x_i^2}{\sigma_i^2}$$

This method is described in Bevington Chapter 6 sections 6.1-4.