$$= \frac{\sigma}{\sigma_{\bar{F}}}(\pi(X)) = \pi^*\left(\frac{\sigma}{\sigma_{\bar{F}}}\right)(X) = G'(X).$$

Thus if $i : t \longmapsto (\mu_0 t, \cdots \mu_n t)$ is any line through the origin in $\mathbb{C}^{n+1}$, the pullback i^*G either is identically zero or has a zero of order d at $t=0$ and a pole of order d at $t=\infty$, i.e.,

$$i^*G = \mu \cdot t^d \quad \text{for some } \mu.$$

$$G(\lambda X) = \lambda^d G(X)$$

$$R \xrightarrow{i} \mathbb{C}^{n+1}$$

$$i^*G(t) = G(i(t)) = G(\mu_0 t, \cdots \mu_n t)$$

$$= t^d G(\mu_0, \mu_1, \cdots \mu_n) = t^d \mu. \quad \text{for } \mu = G(\mu_0, \cdots \mu_n).$$

It follows that the power series expansion

$$G(X_0, X_1, \cdots X_n) = \sum a_{i_0, \cdots i_n} X_0^{i_0} \cdots X_n^{i_n}$$

for G around the origin in $\mathbb{C}^{n+1}$ contains no terms of degree other than d, i.e., that G is a homogeneous polynomial of degree d in $X_0, X_1, \cdots X_n$.
Thus $\sigma = \sigma_G$ is of the desired form, and we have shown that every global section of H^d is given by a homogeneous polynomial in $X_0, X_1, \cdots X_n$.