a set of distinct four points since the Veronese surface is of degree four. $\Rightarrow$ Let $\mathbb{P}^3 \cap i(\mathbb{P}^2) = \{ [\sigma_0(p_1), \cdots \sigma_5(p_1)], \cdots [\sigma_0(p_4), \cdots \sigma_5(p_4)] \}$.
Choose a generic point p_5 s.t $[\sigma_0(p_5), \cdots \sigma_5(p_5)] \notin \mathbb{P}^3 \cap i(\mathbb{P}^2)$. $\Rightarrow$ The five points are linearly independent in $\mathbb{P}^5$ $\Rightarrow$ $\exists$ 1-dimensional $(a_0, \cdots a_5)$ s.t $a_0\sigma_0 + \cdots a_5\sigma_5 = 0$ for all p_i's.

$\lrcorner$

Likewise, the conics through four generic points cut out on a generic line l a pencil of degree 2, which then has two branch points; so

$$\tilde{I}_p^4 \cdot \tilde{I}_l = 2.$$

$\ulcorner$ $\tilde{I}_p^4 \cdot \tilde{I}_l = \tilde{I}_{p_1} \cap \tilde{I}_{p_2} \cap \tilde{I}_{p_3} \cap \tilde{I}_{p_4} \cap \tilde{I}_l \ni C$
$\Rightarrow$ C passes generic four points p_1, p_2, p_3, p_4. and is tangent to a generic line l.
For generic four points p_1, p_2, p_3, p_4,
$\{ [\sigma_0(p_1), \cdots \sigma_5(p_1)], \cdots [\sigma_0(p_4), \cdots \sigma_5(p_4)] \}$ is linearly independent, since $i : \mathbb{P}^2 \longrightarrow \mathbb{P}^5$ defined by $p \longmapsto [\sigma_0(p), \cdots \sigma_5(p)]$ is the Veronese embedding, and $i(\mathbb{P}^2)$ is of degree 4.
$\Rightarrow$ $\{ [a_0, \cdots a_5] \in \mathbb{P}^5 \mid a_0\sigma_0 + \cdots + a_5\sigma_5 = 0 \text{ on } p_1, \cdots p_5 \} = \mathbb{P}^1$. Note: For generic four points p_1, p_2, p_3, p_4, $\{ [\sigma_0(p_1), \cdots \sigma_5(p_1)], \cdots [\sigma_0(p_4), \cdots \sigma_5(p_4)] \}$ is a set of