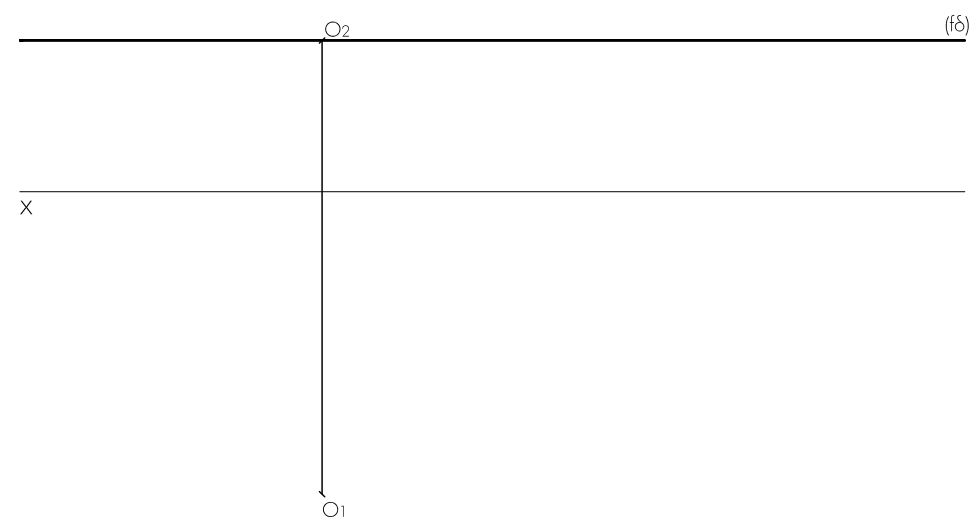
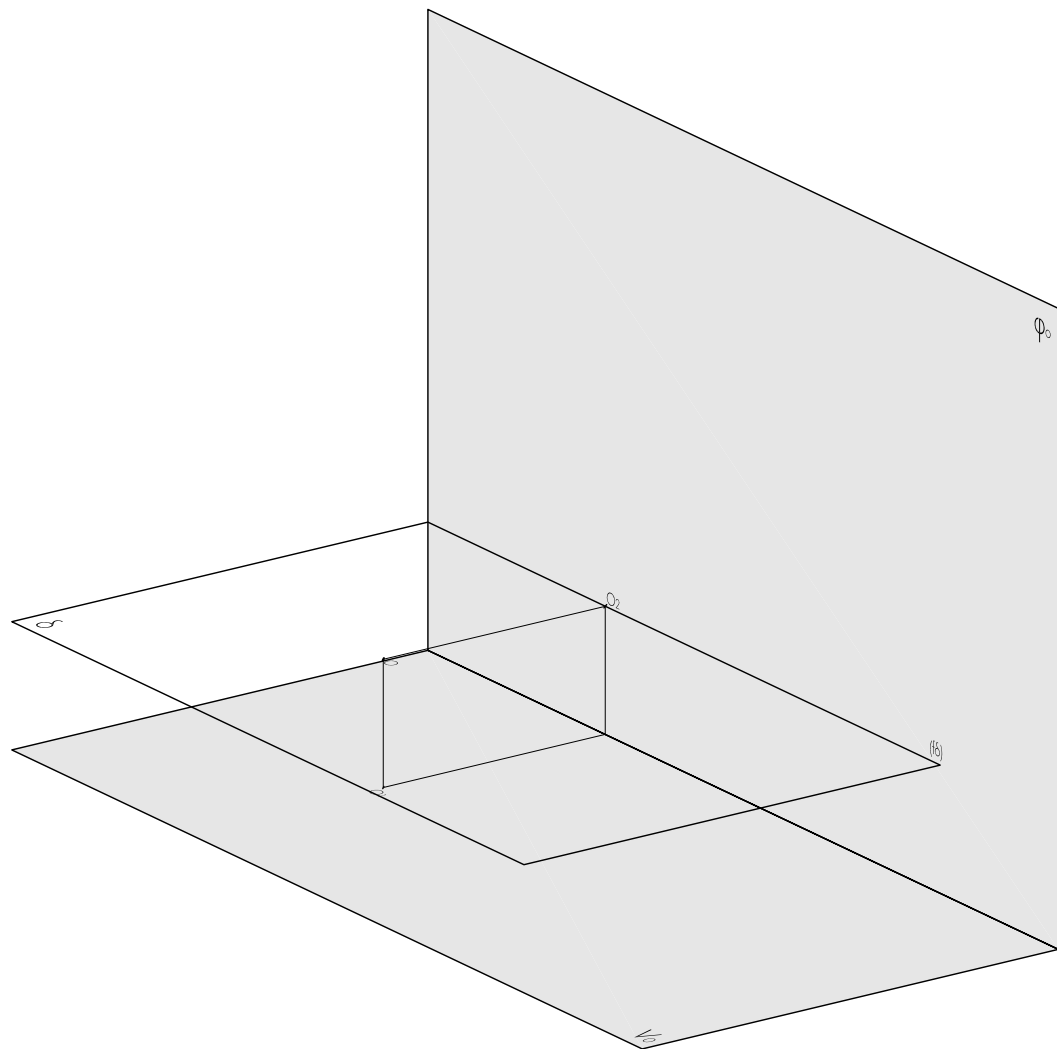


É dado um cone de revolução, situado no 1º diedro, assente pela base num plano horizontal  $\delta$ .

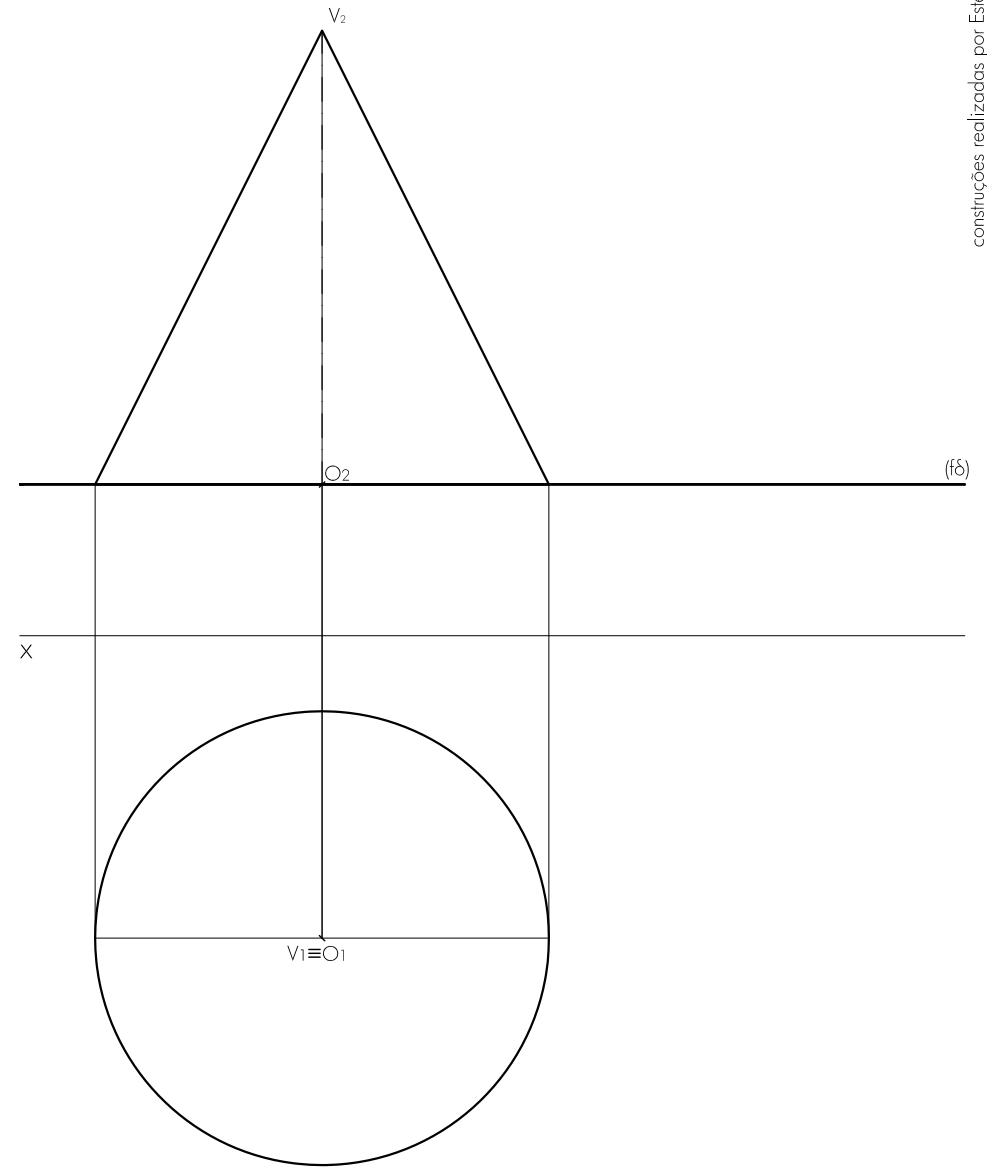
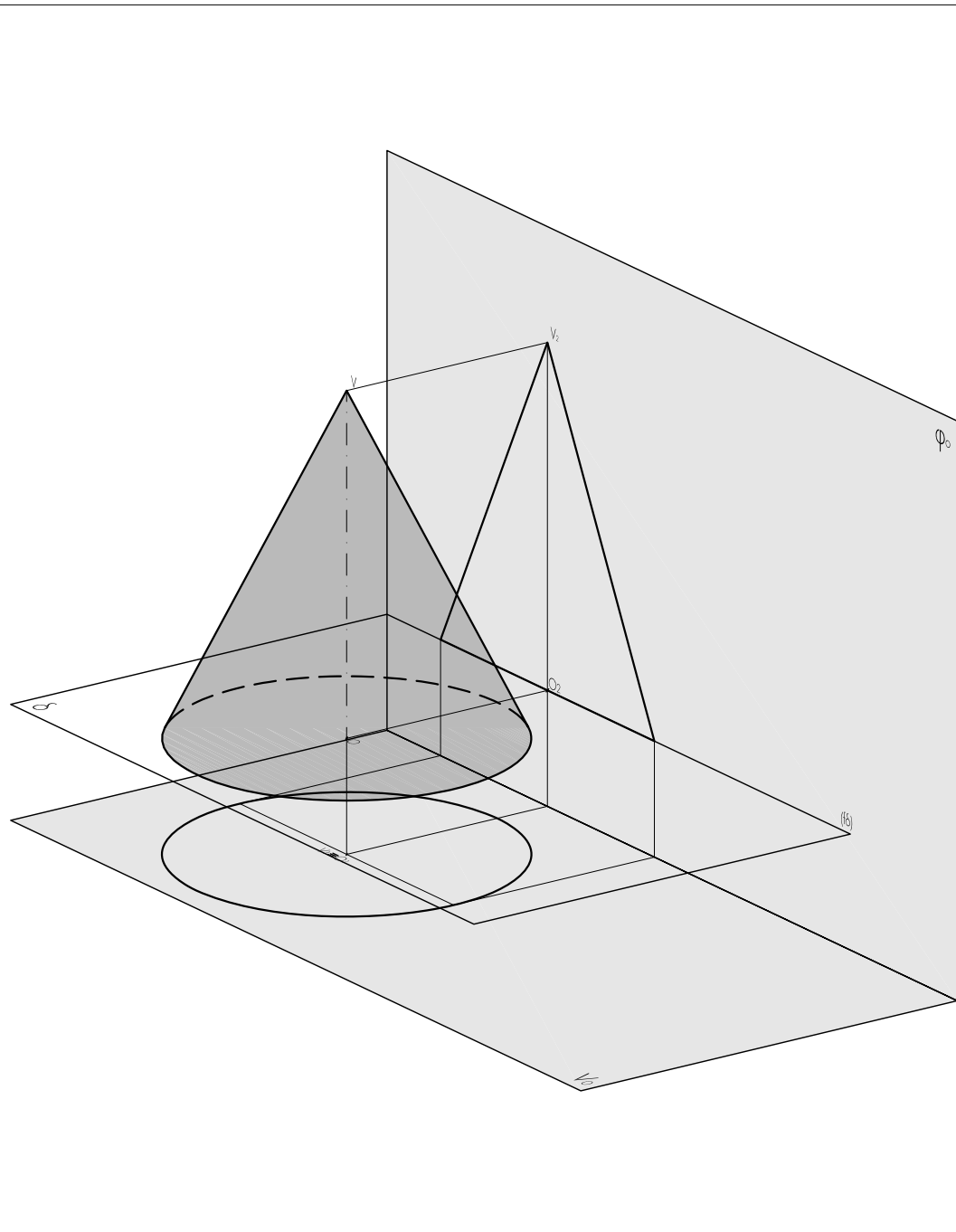
A base do cone tem 3 cm de raio e o seu centro é o ponto  $O(4; 2)$ .

O cone tem 6 cm de altura.

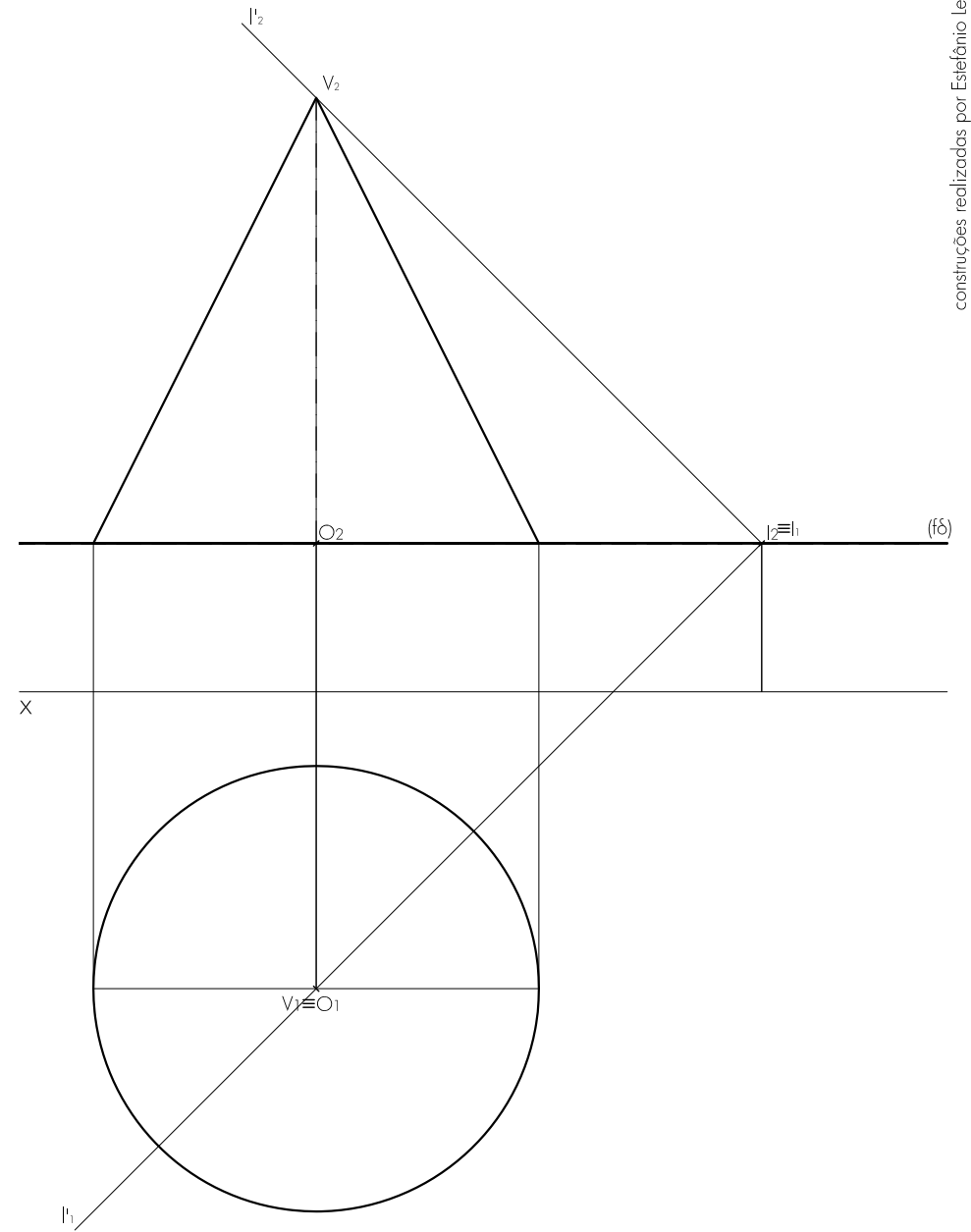
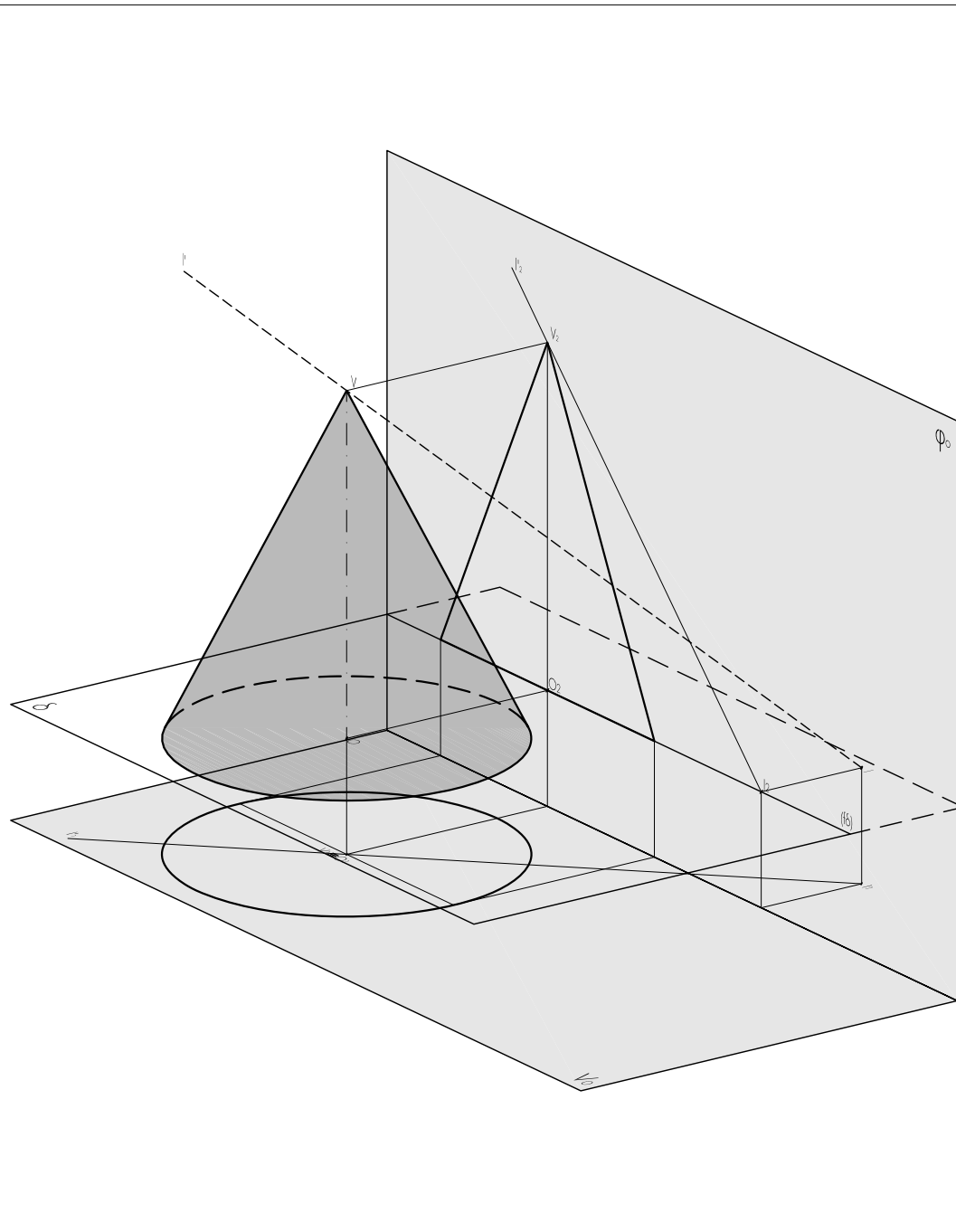
Determine as sombras própria e projectada nos planos de projecção, considerando para o efeito a direcção luminosa convencional.



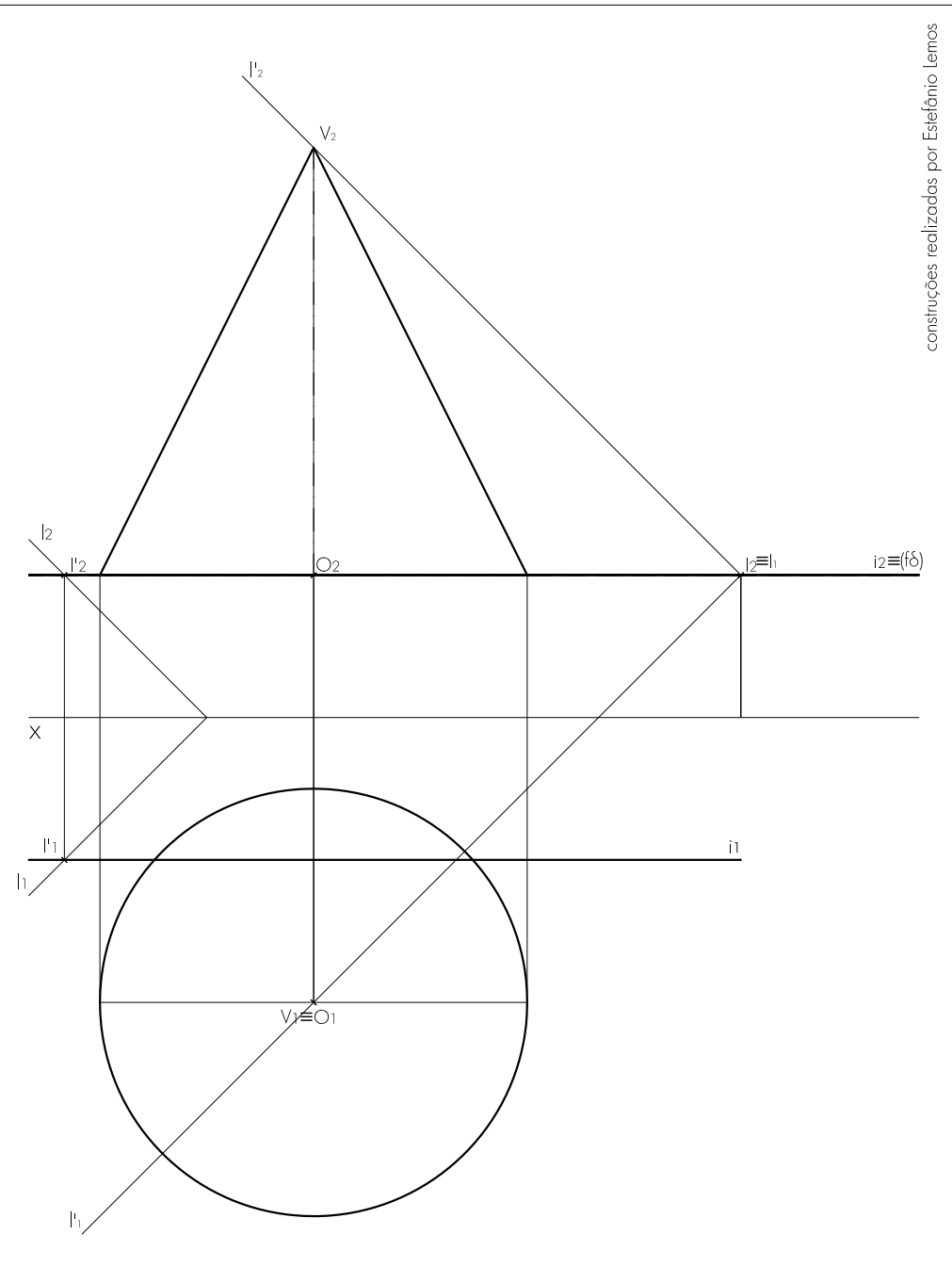
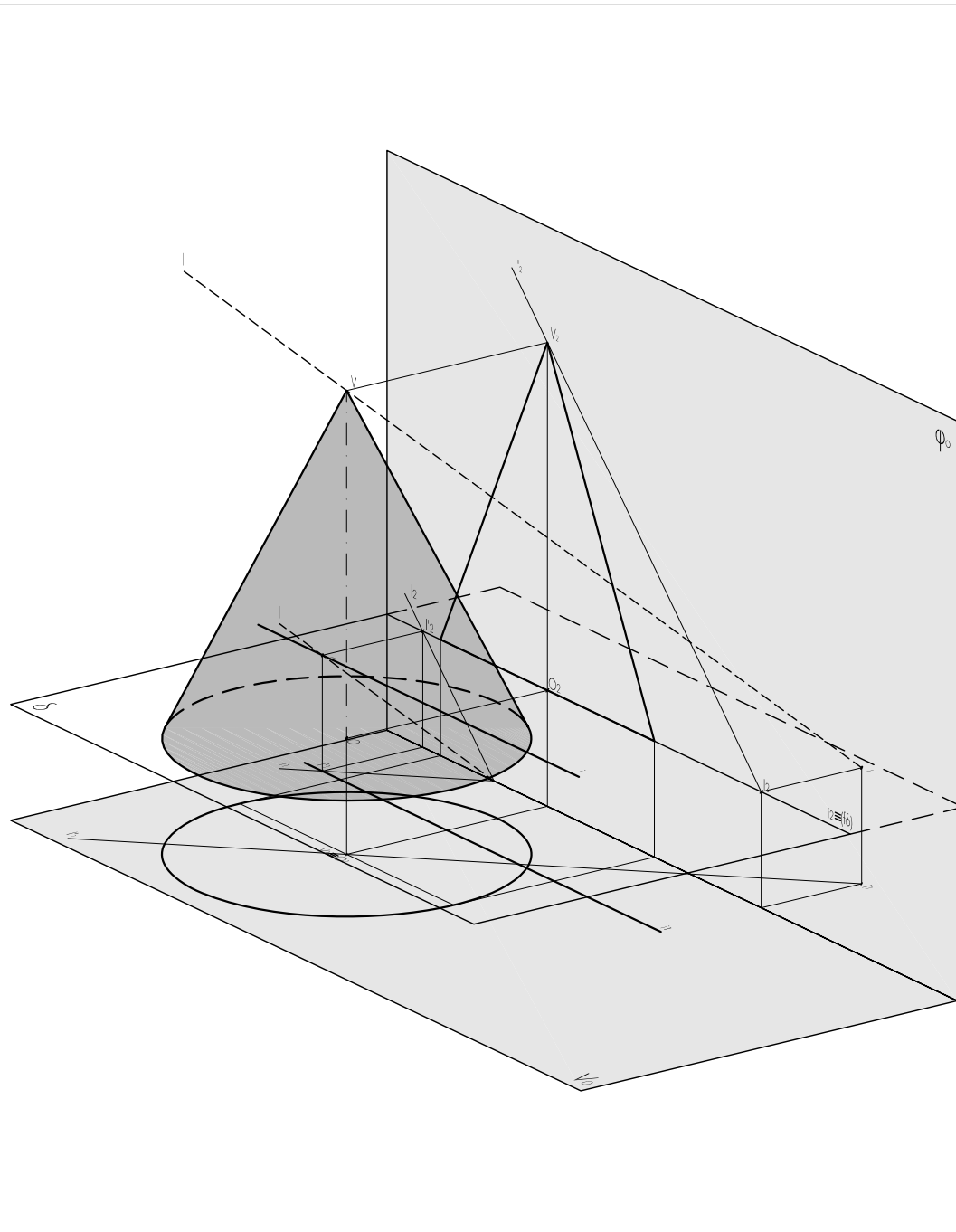
1) tradução gráfica dos dados;

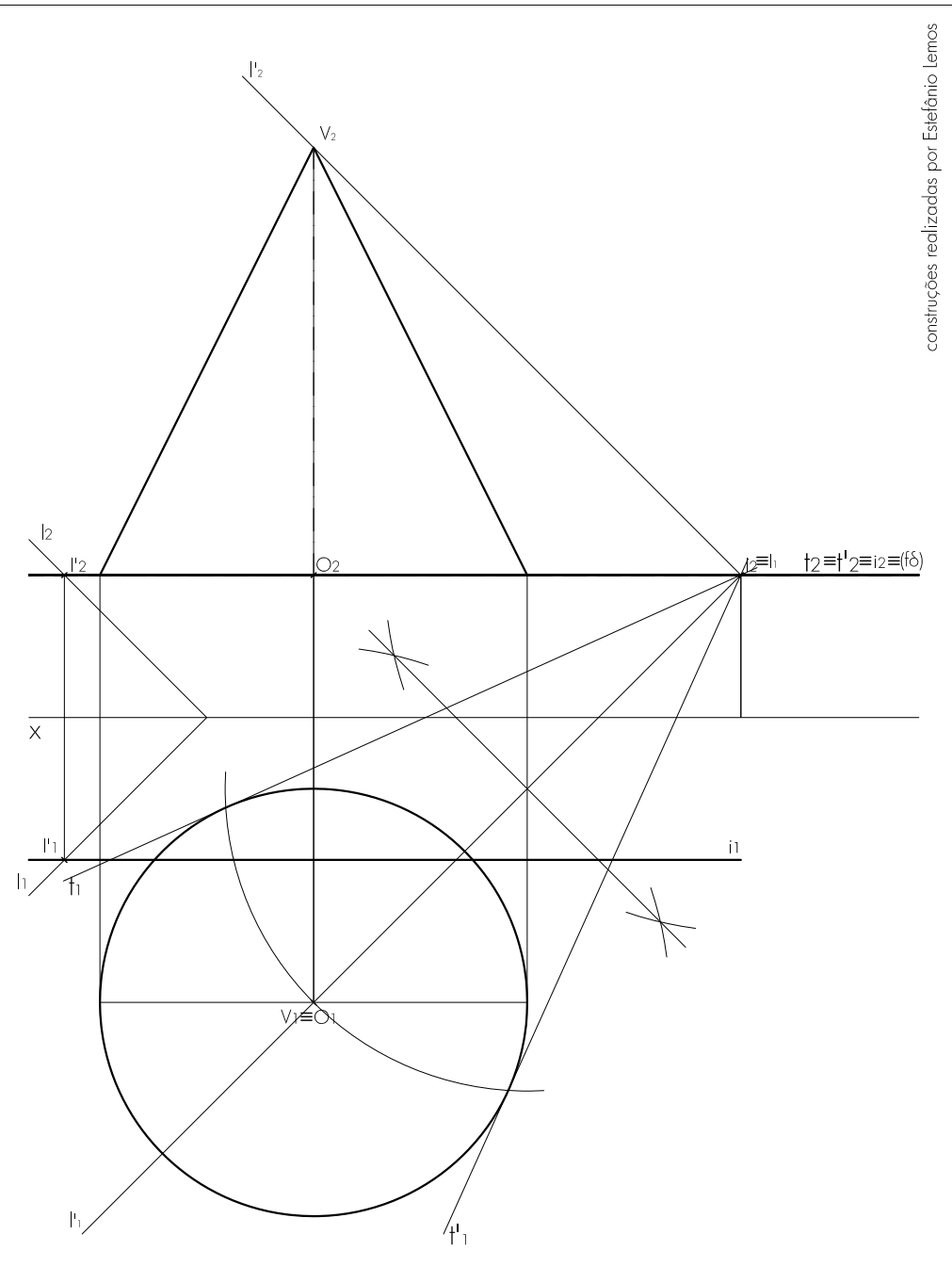
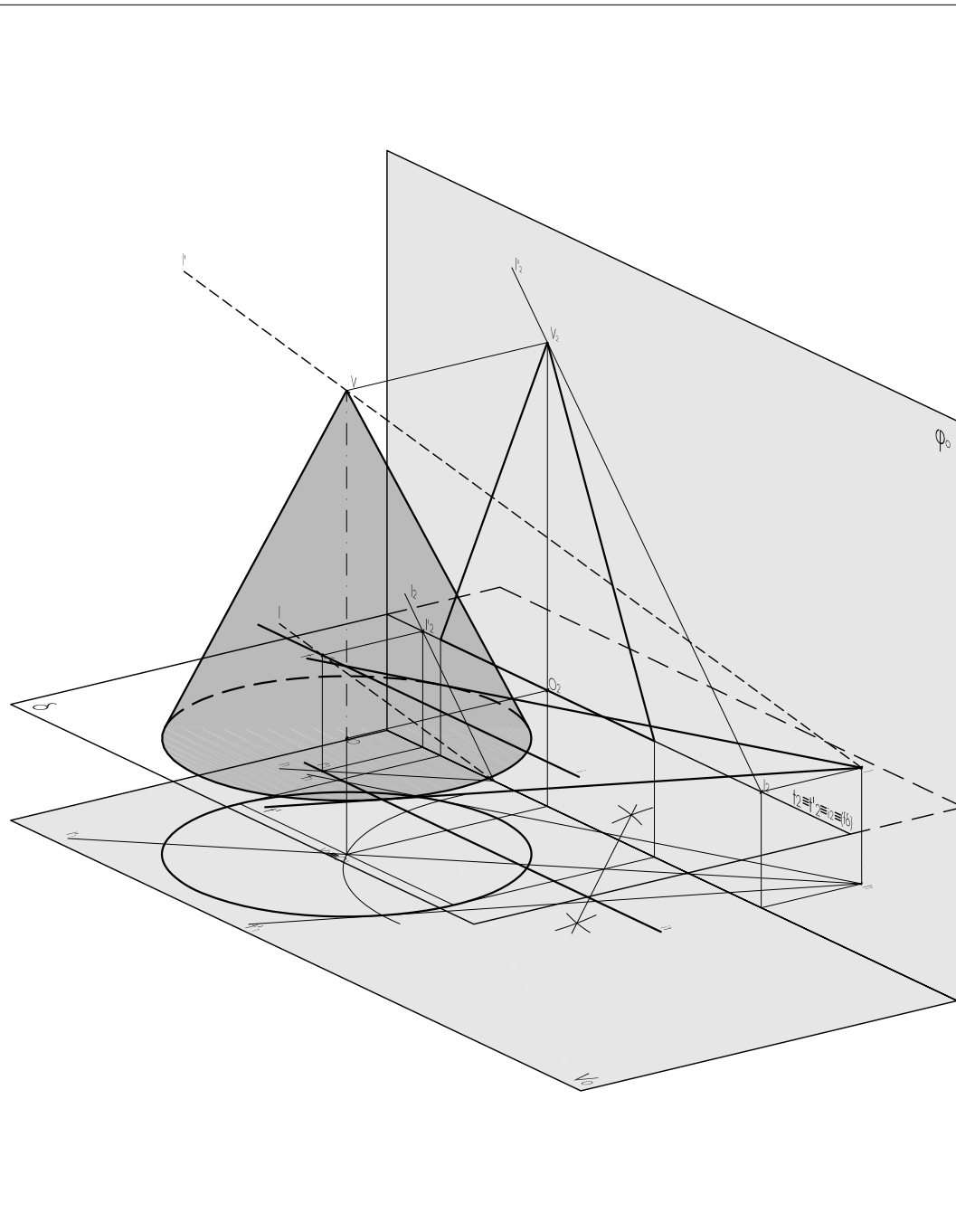


2) determinação das projecções do sólido;

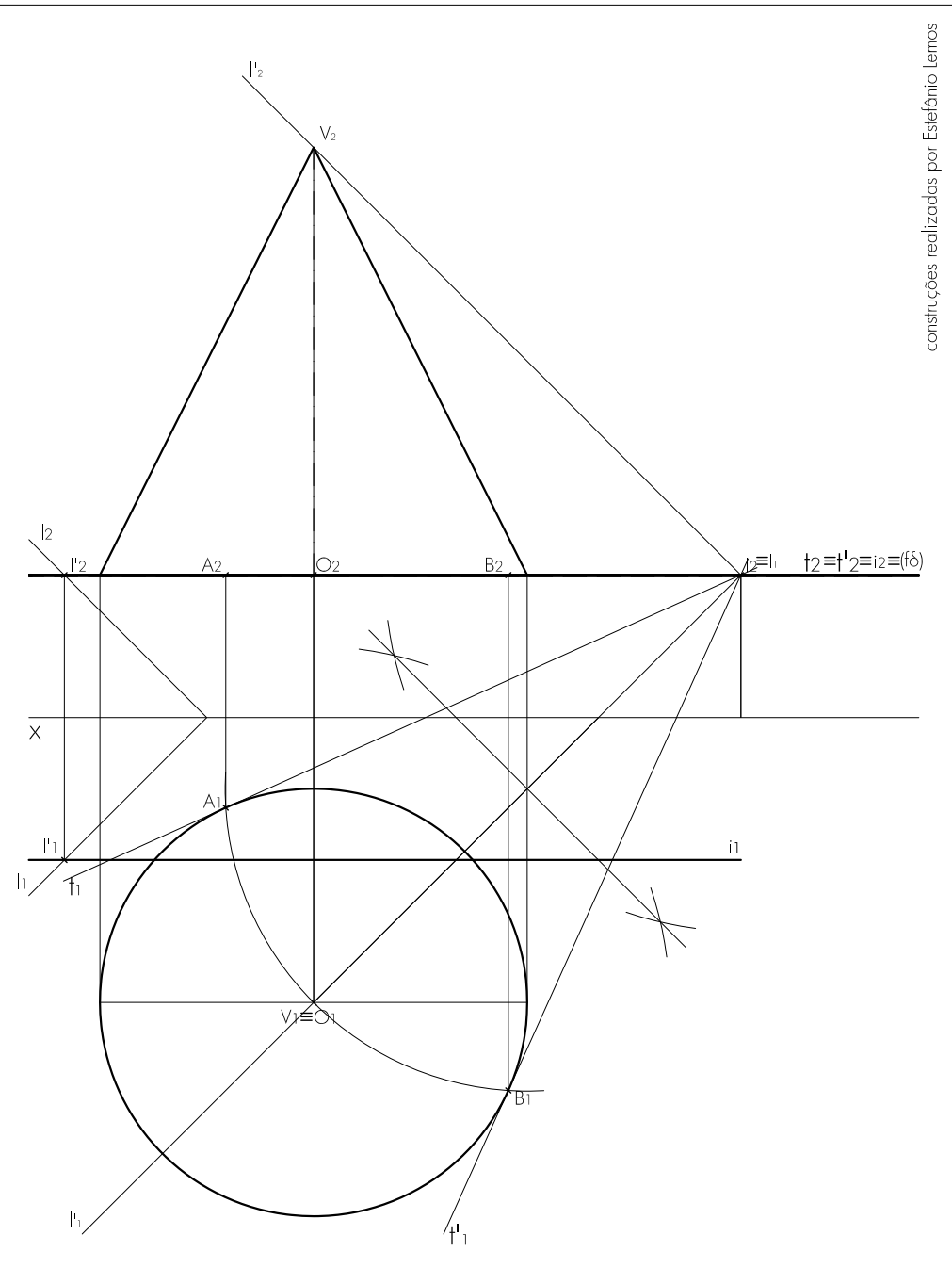
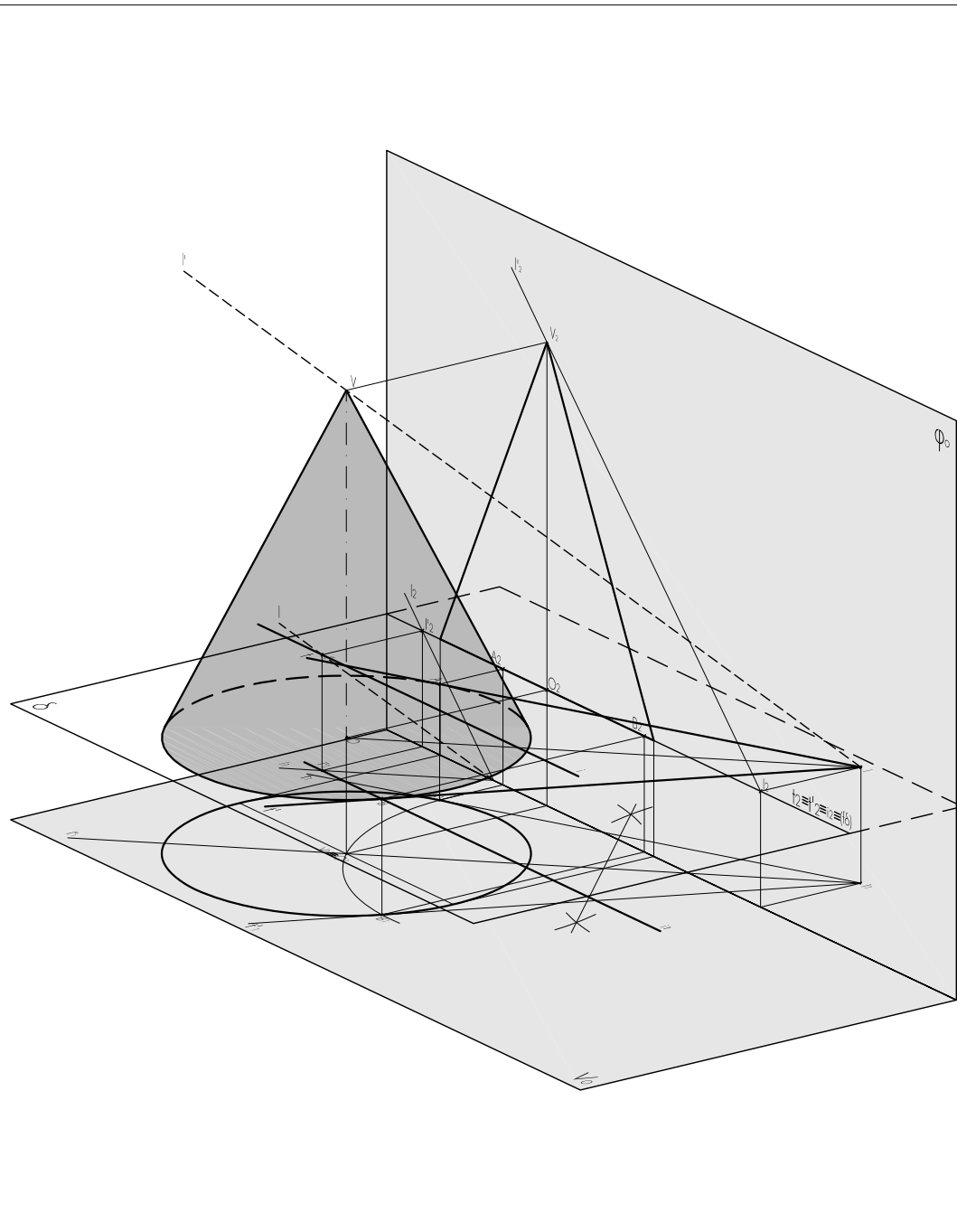


3) traçado de raio luminoso pela vértice; 4) determinação do ponto I de intersecção com o plano da base  $\delta$ ;

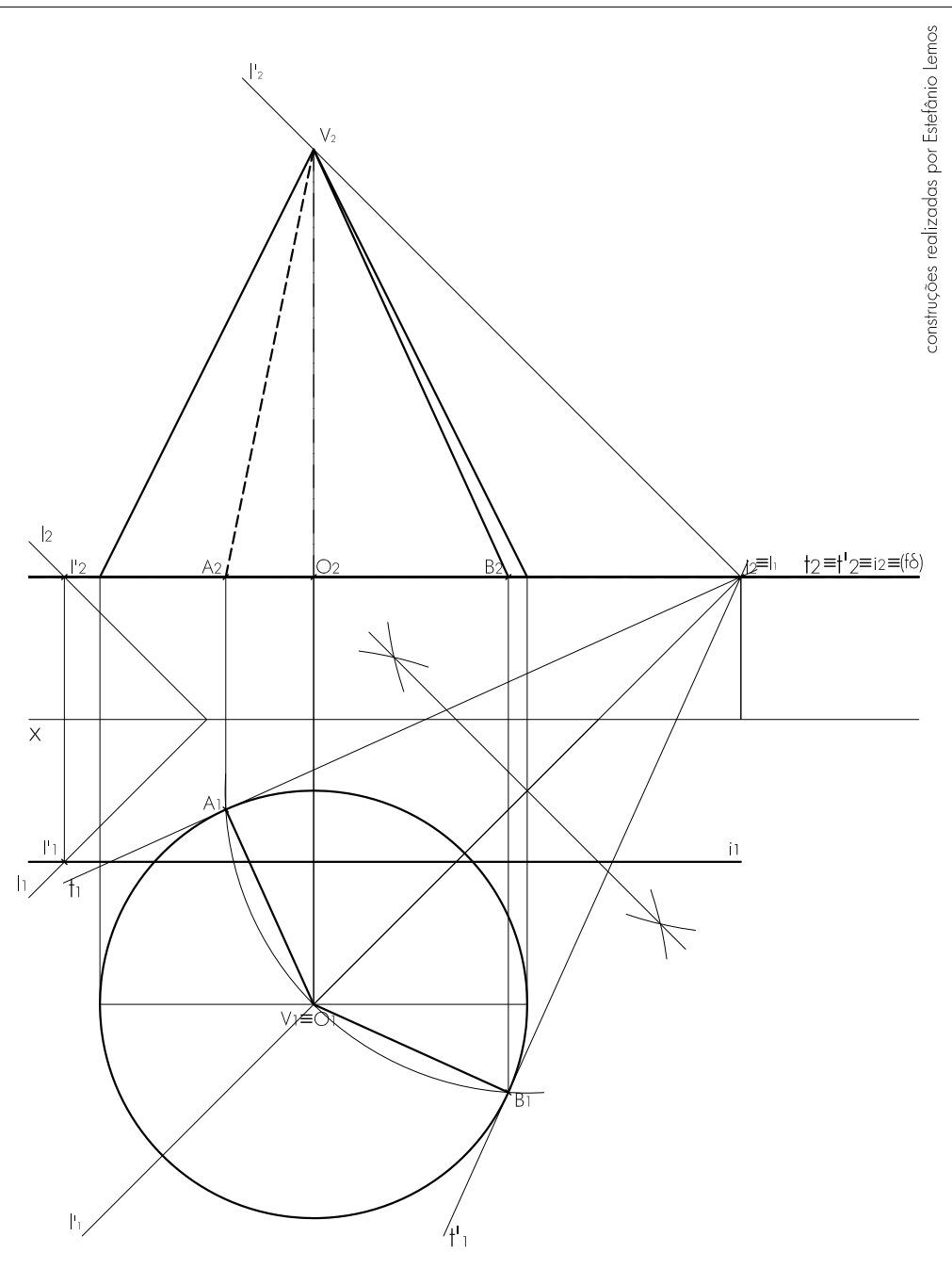
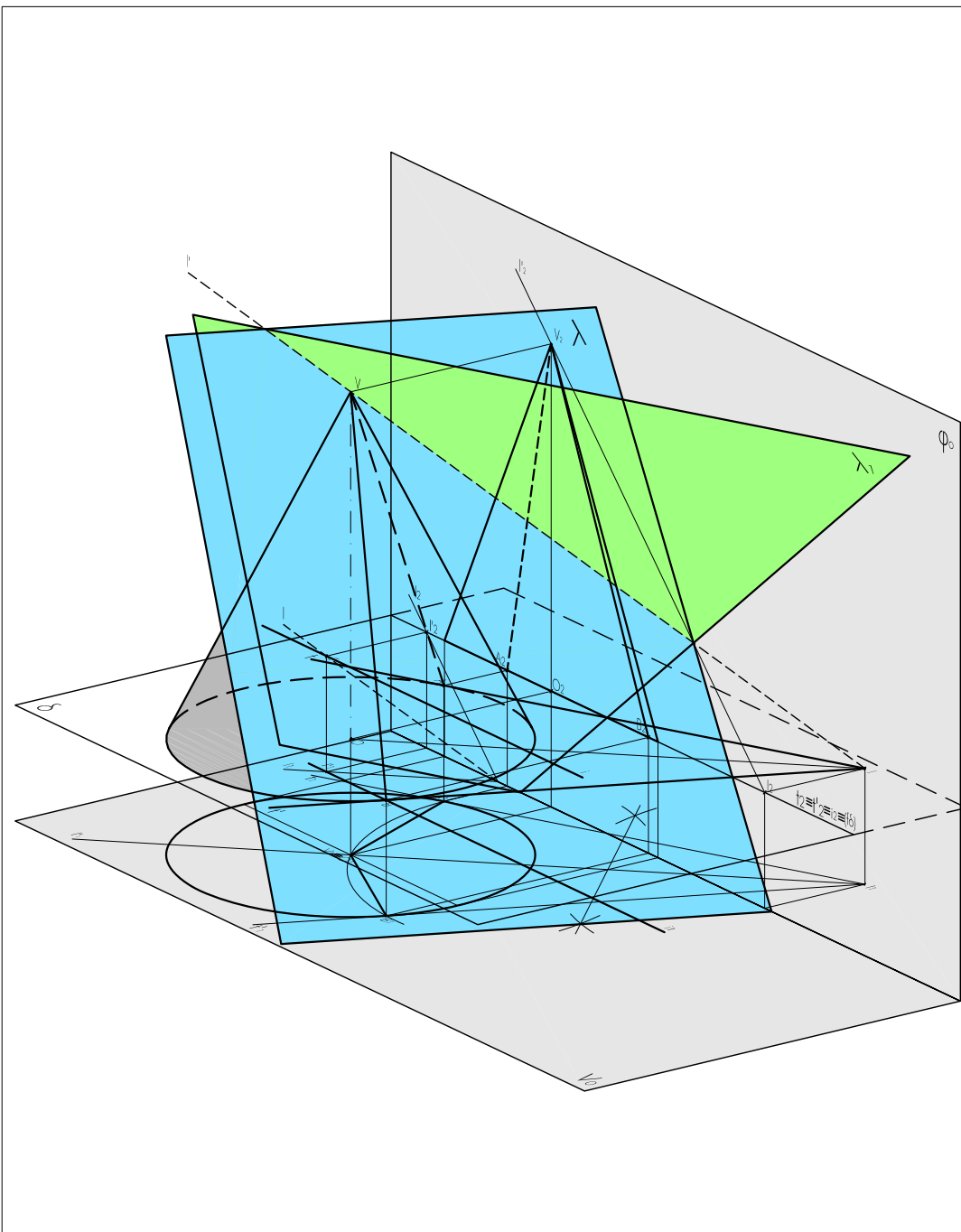




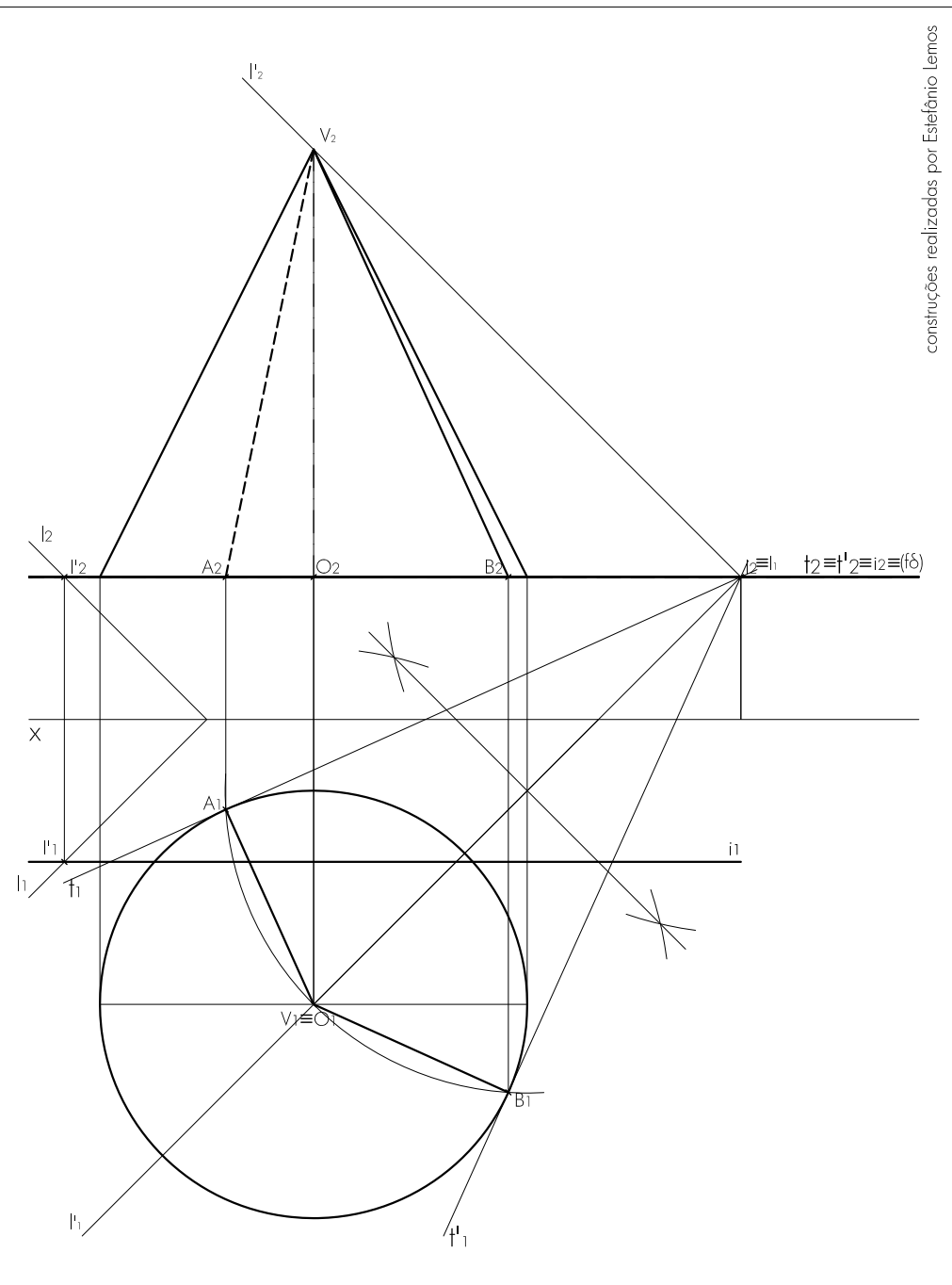
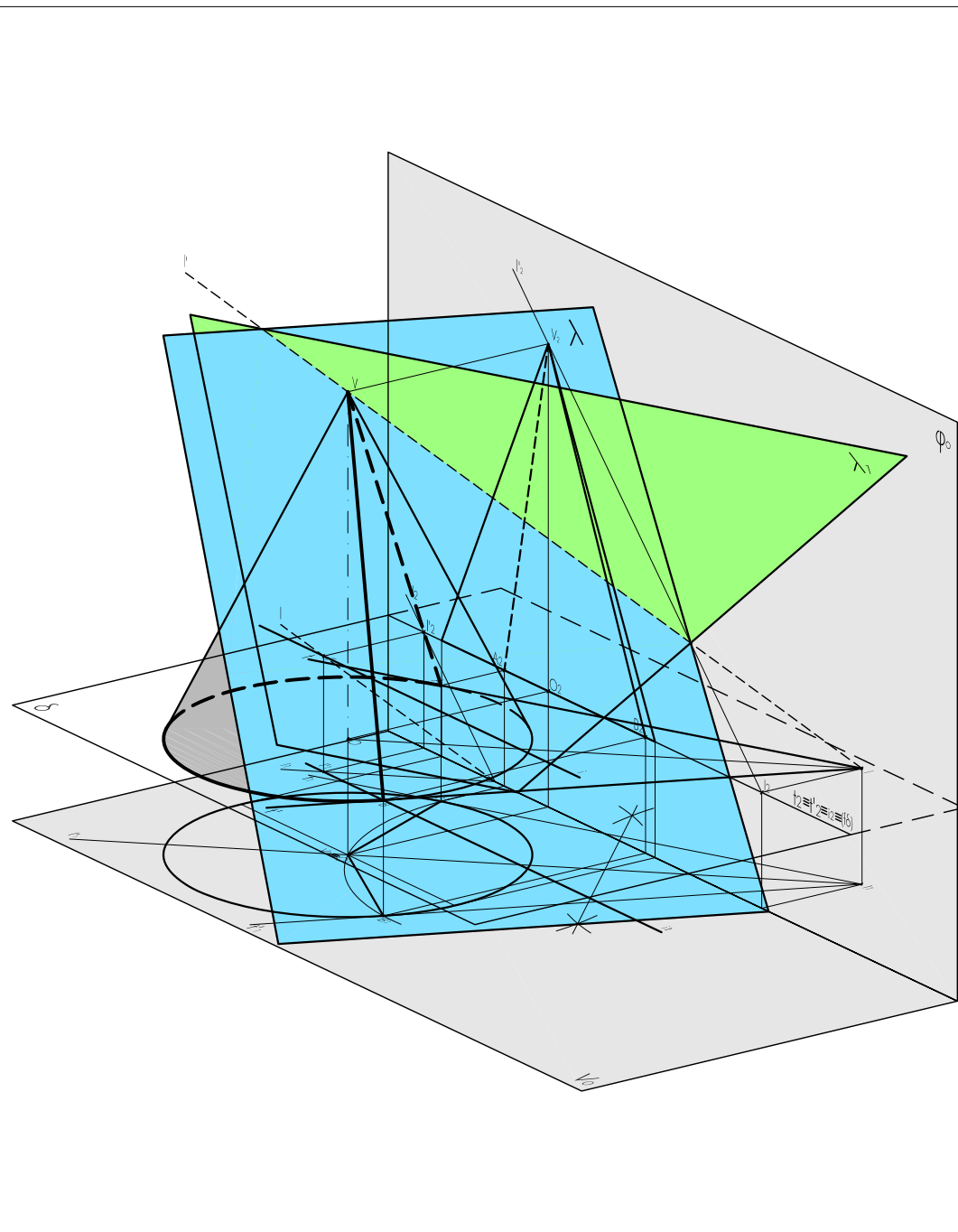
6) traçado das rectas tangentes  $t$  e  $t'$  à base do cone para determinação da Linha Separatriz Luz|Sombra - LSLS;



7) determinação dos pontos A e B de tangência;

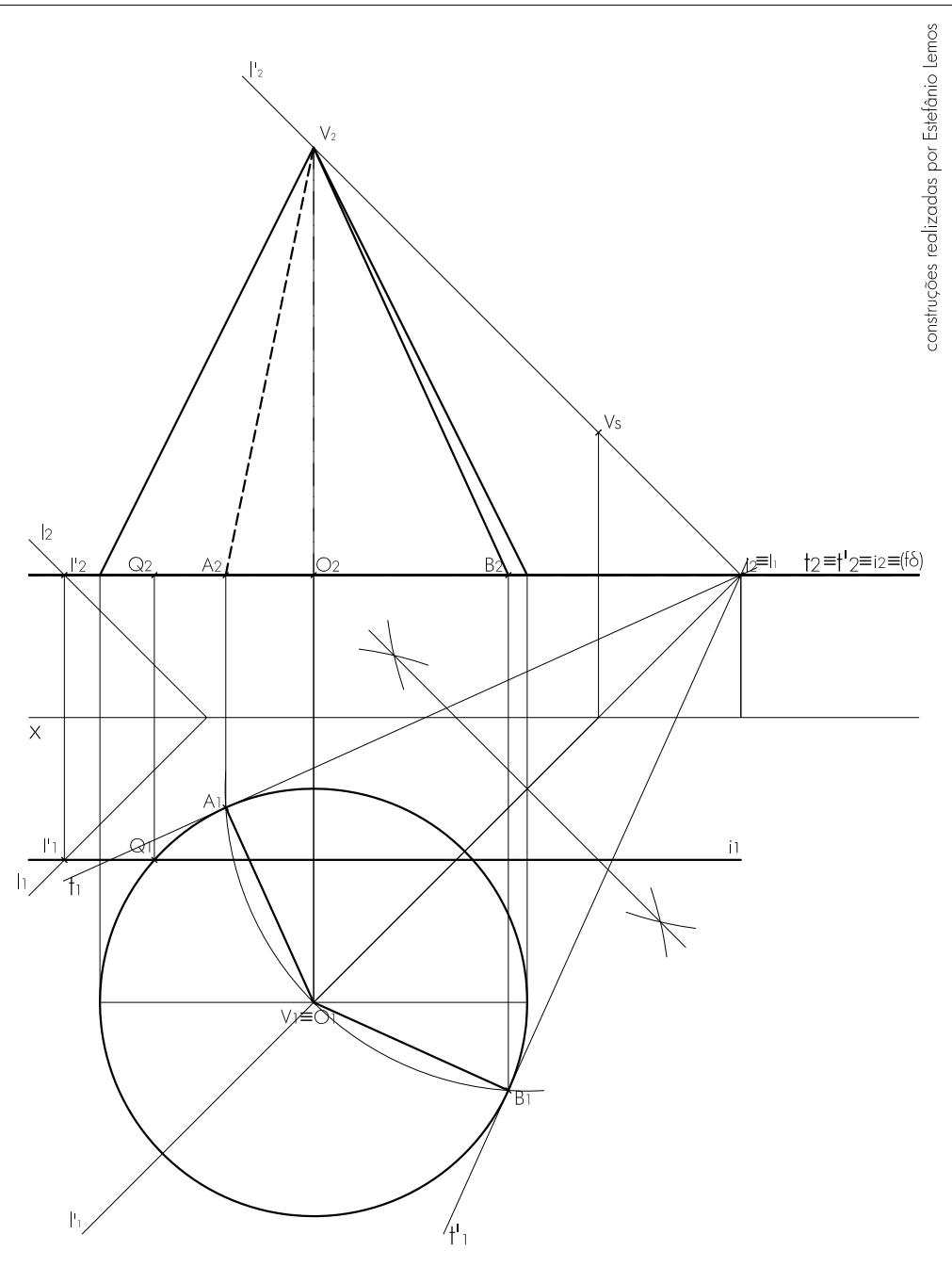
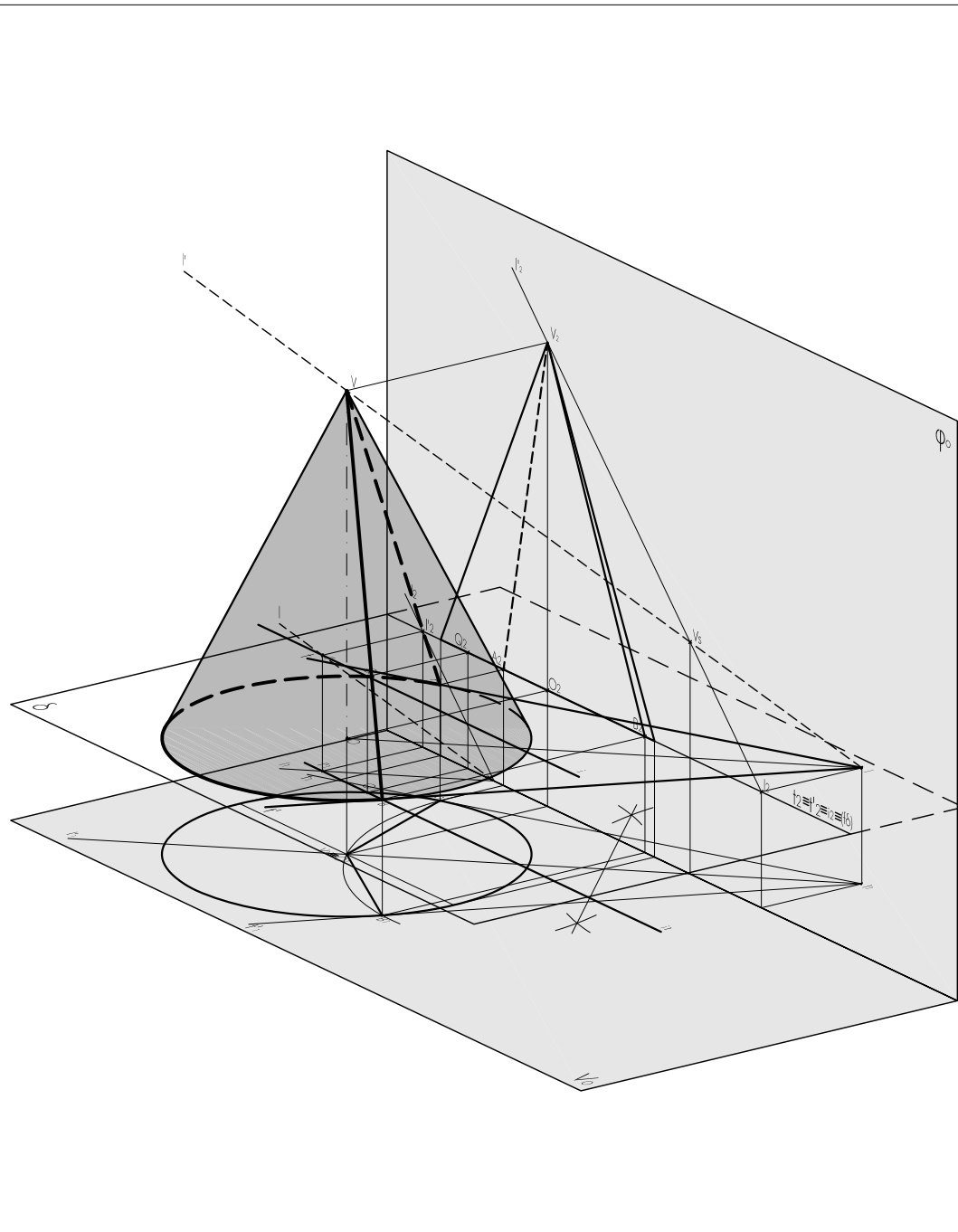


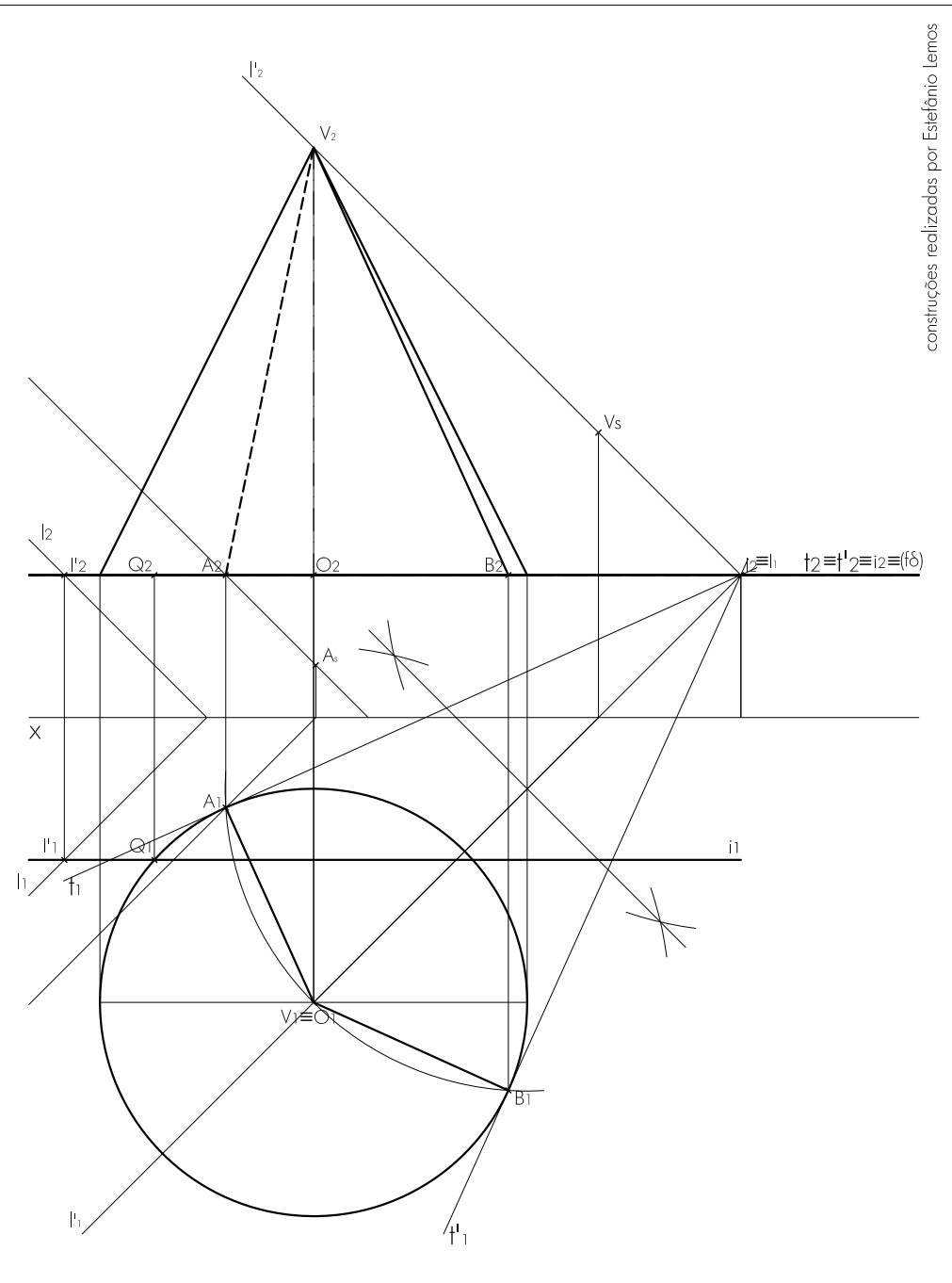
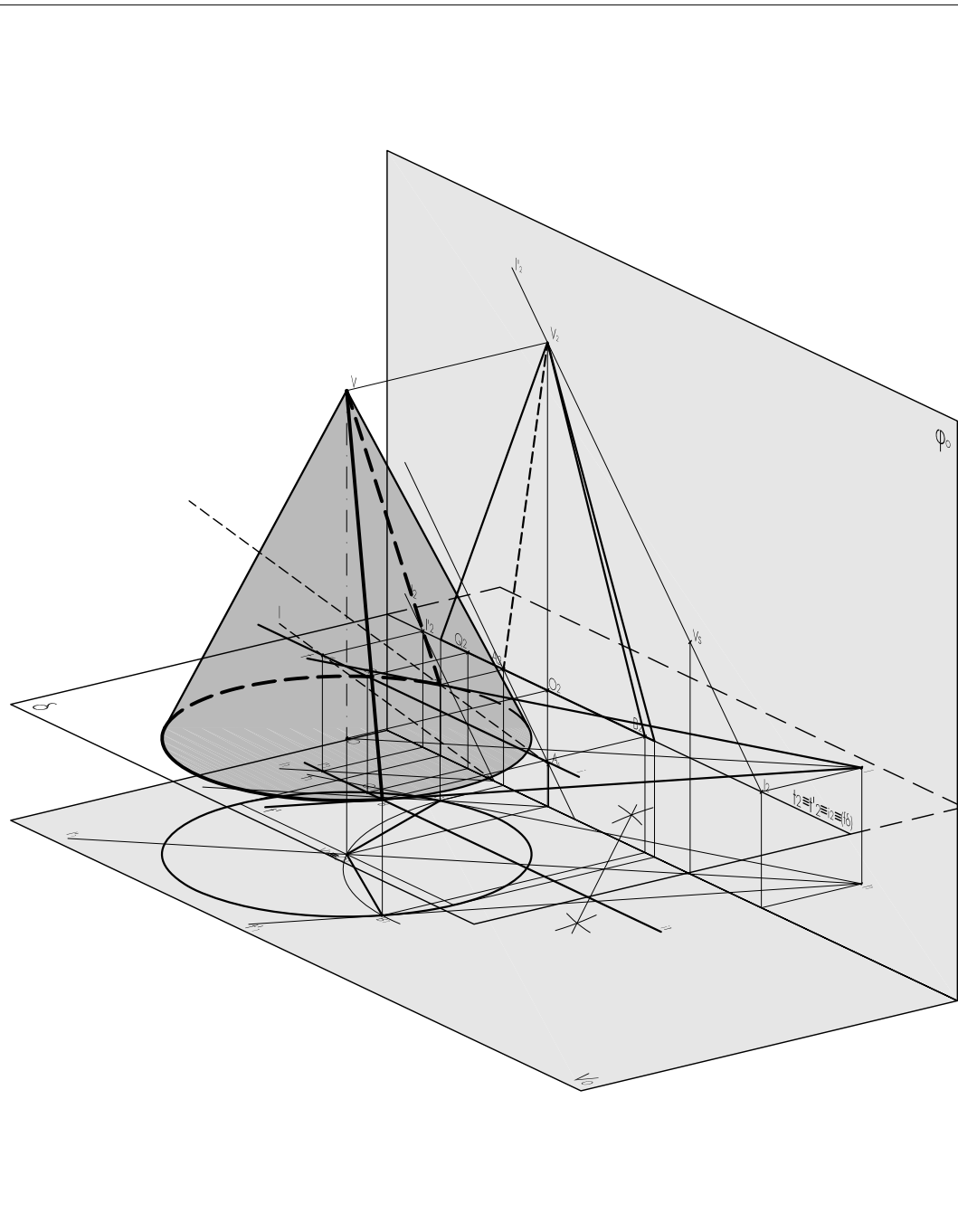




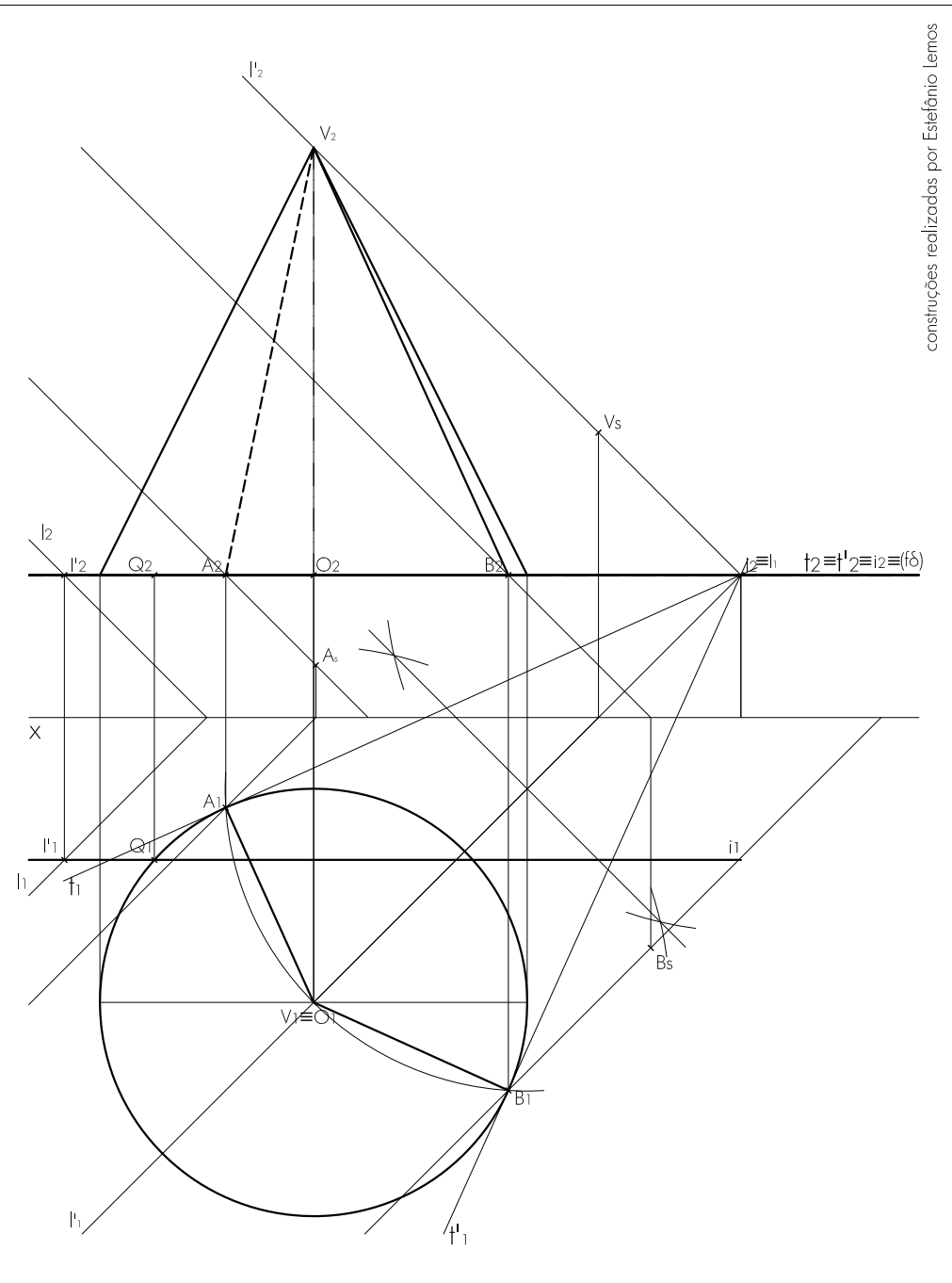
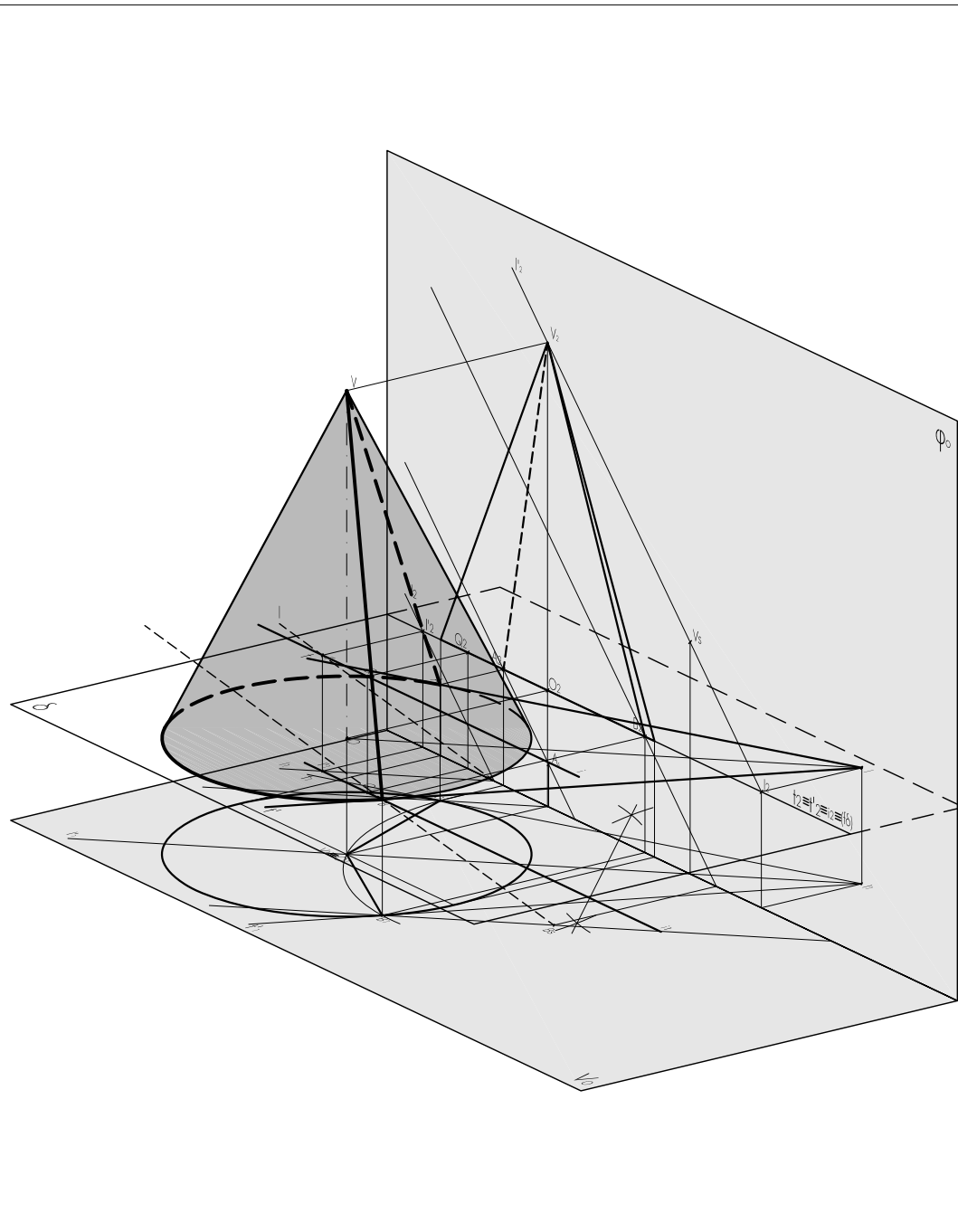
10) a base e a parte menor da superfície estão em sombra, logo a linha Separatriz Luz | Sombra é:  $\widehat{ABV}$ ;



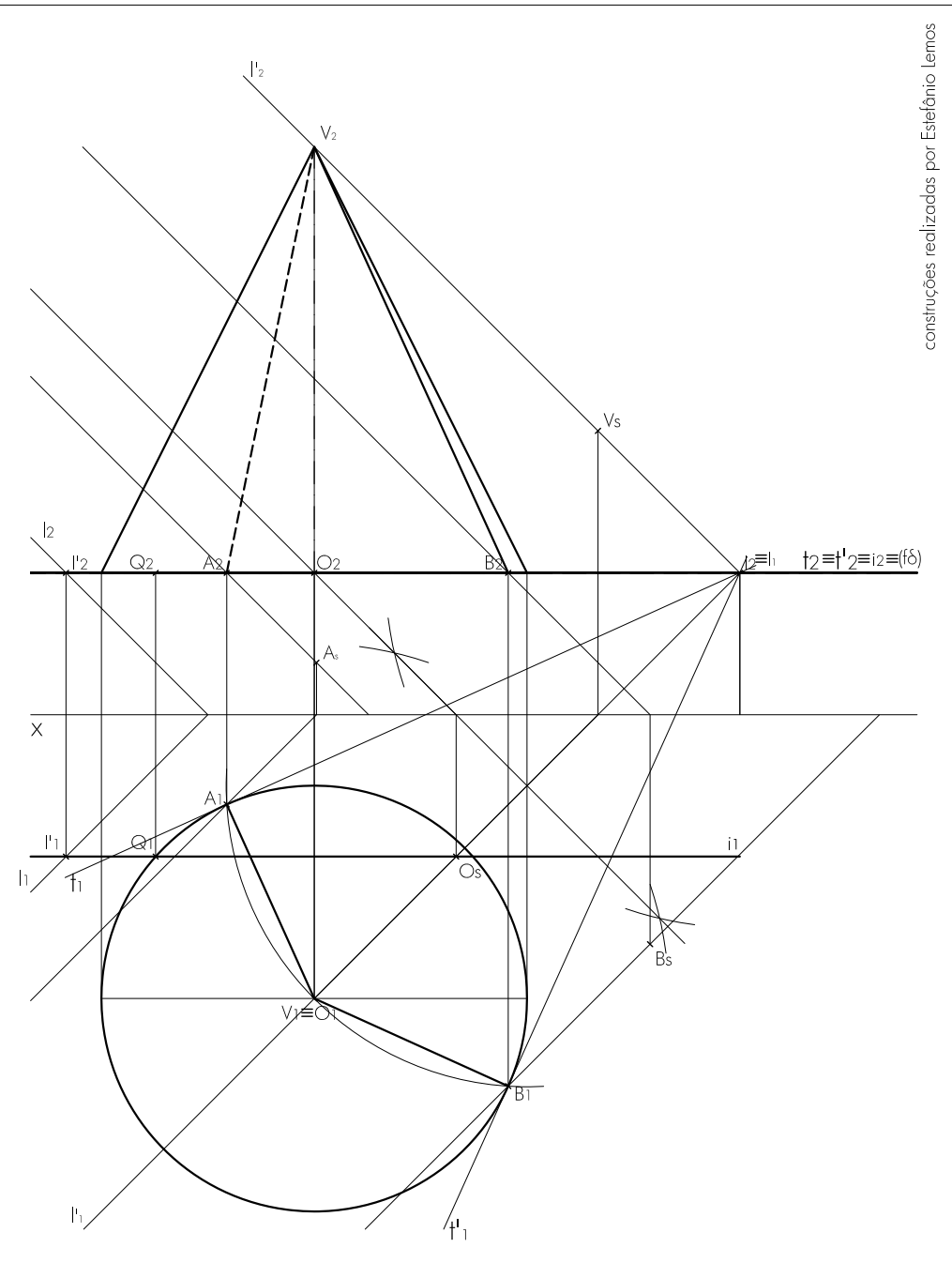
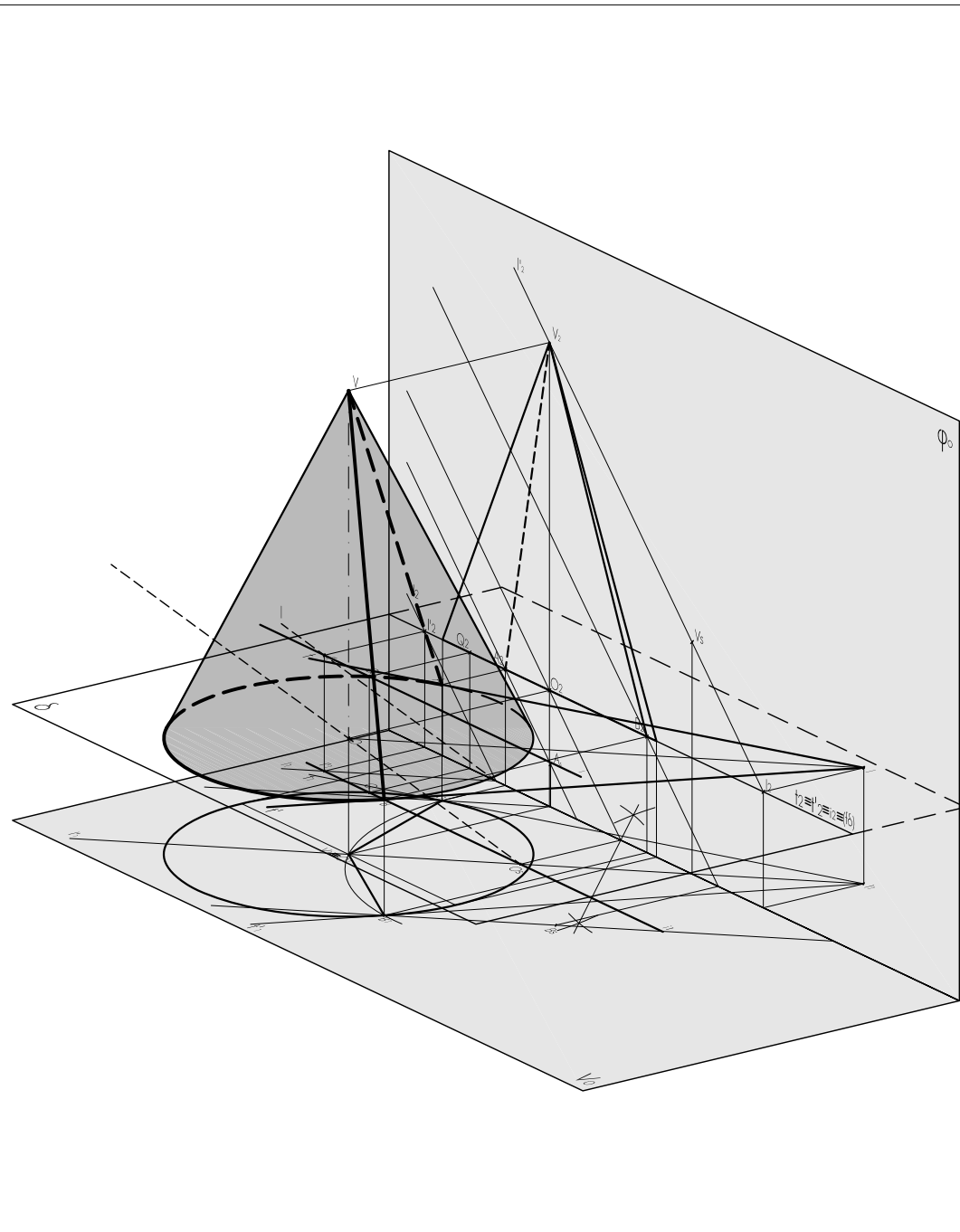




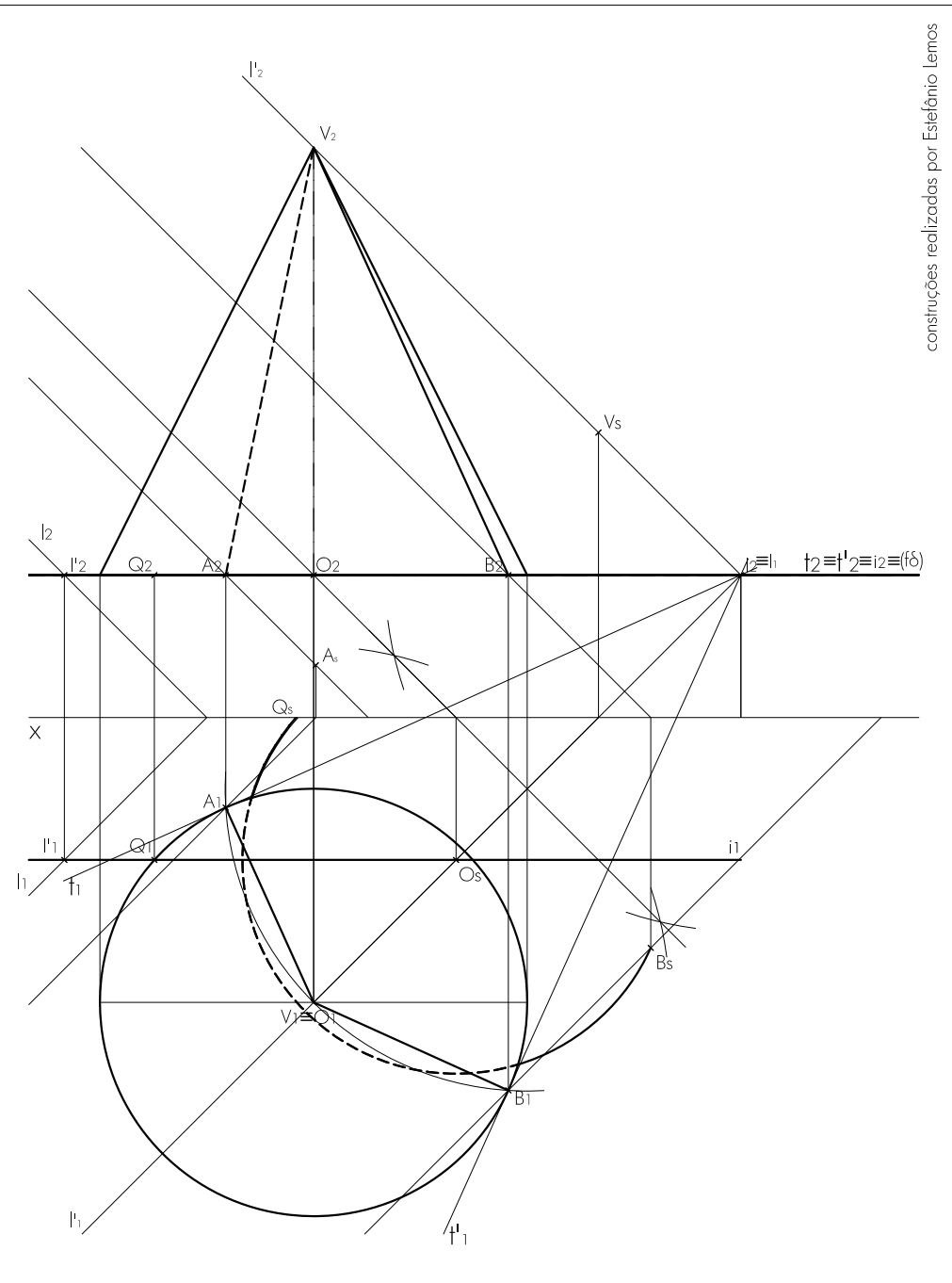
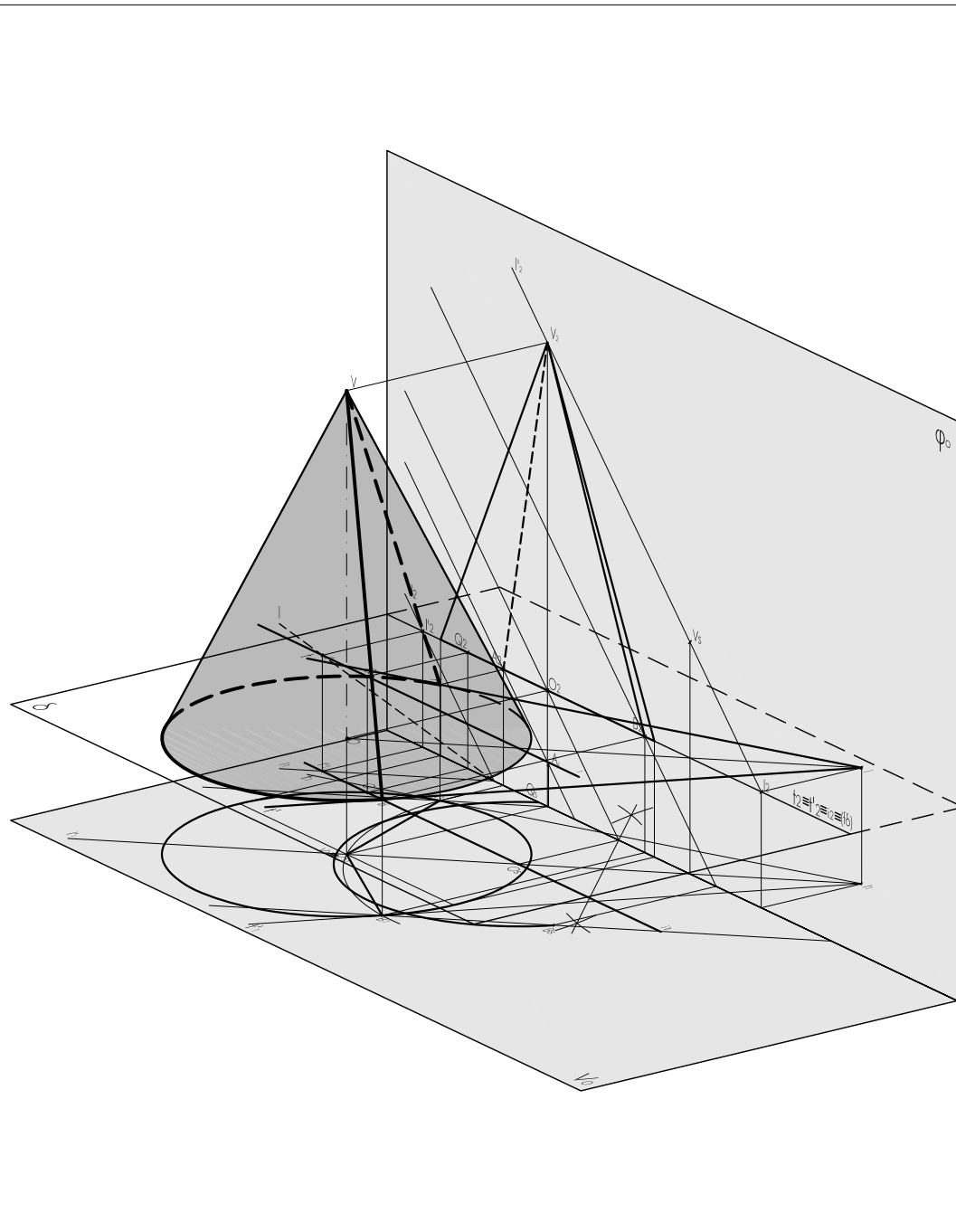
13) determinação da sombra real de A;



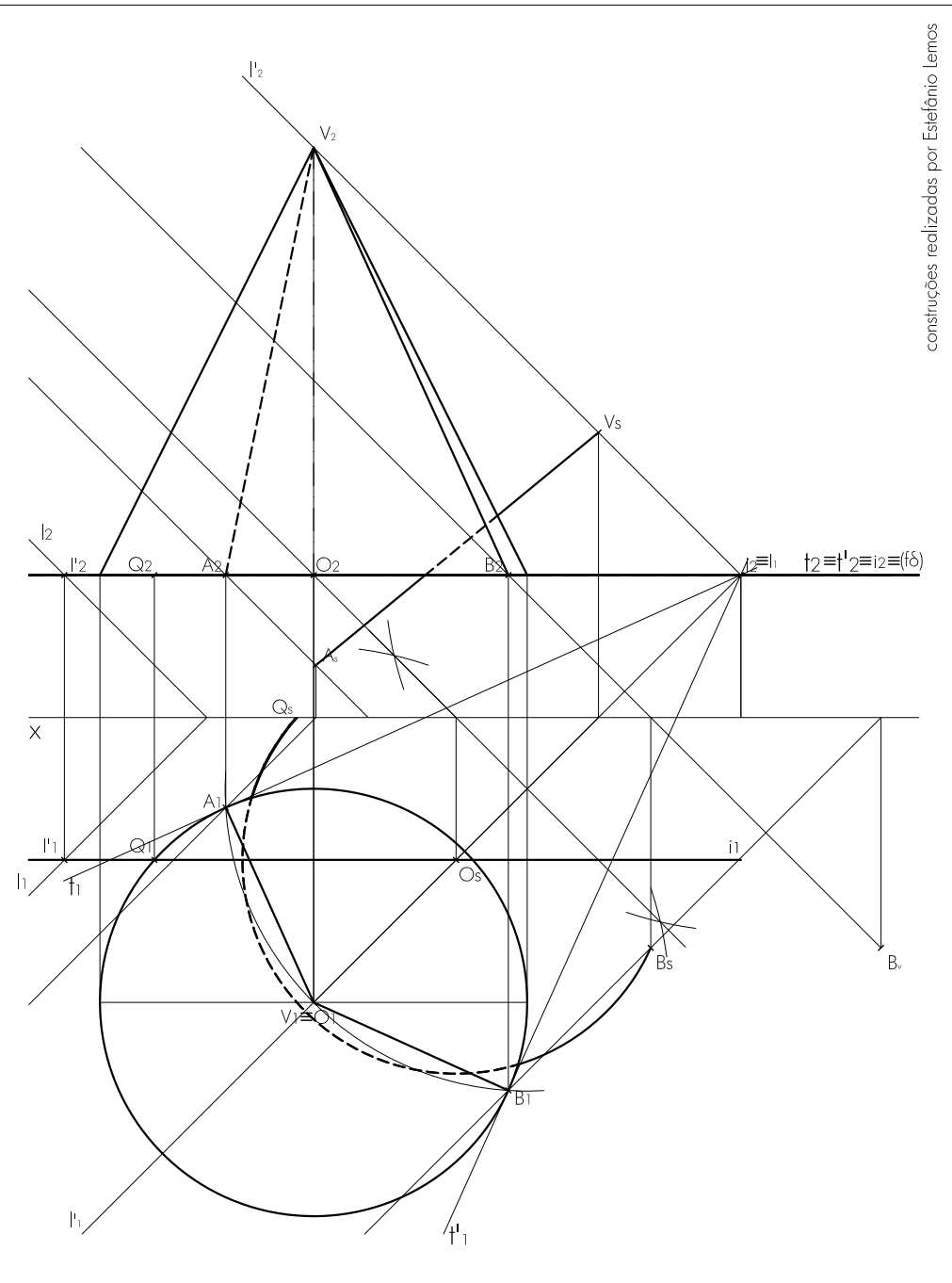
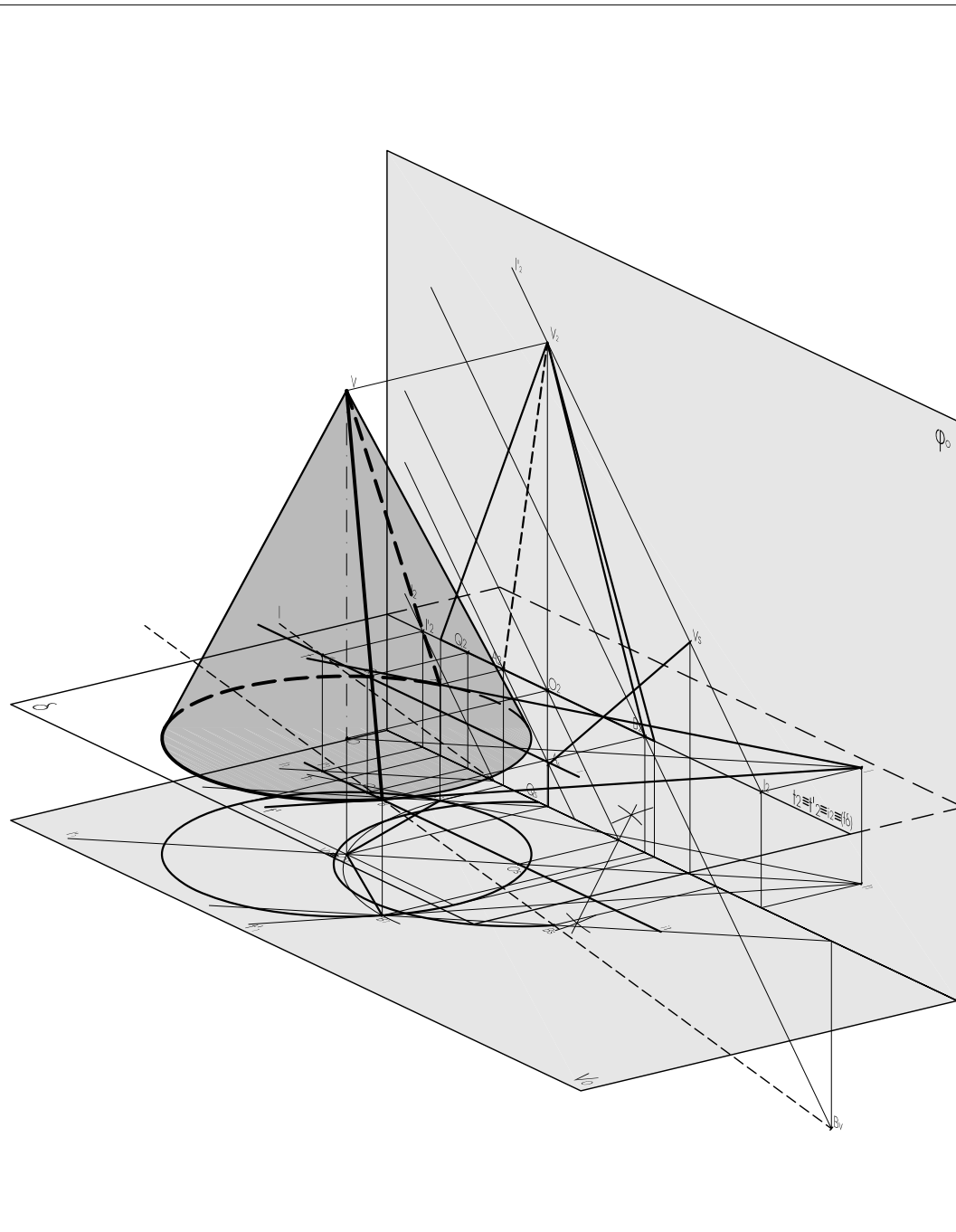
14) determinação da sombra real de B;



15) determinação da sombra real de  $\odot$  para traçado da sombra de  $\hat{A}B$  no plano horizontal de projecção;

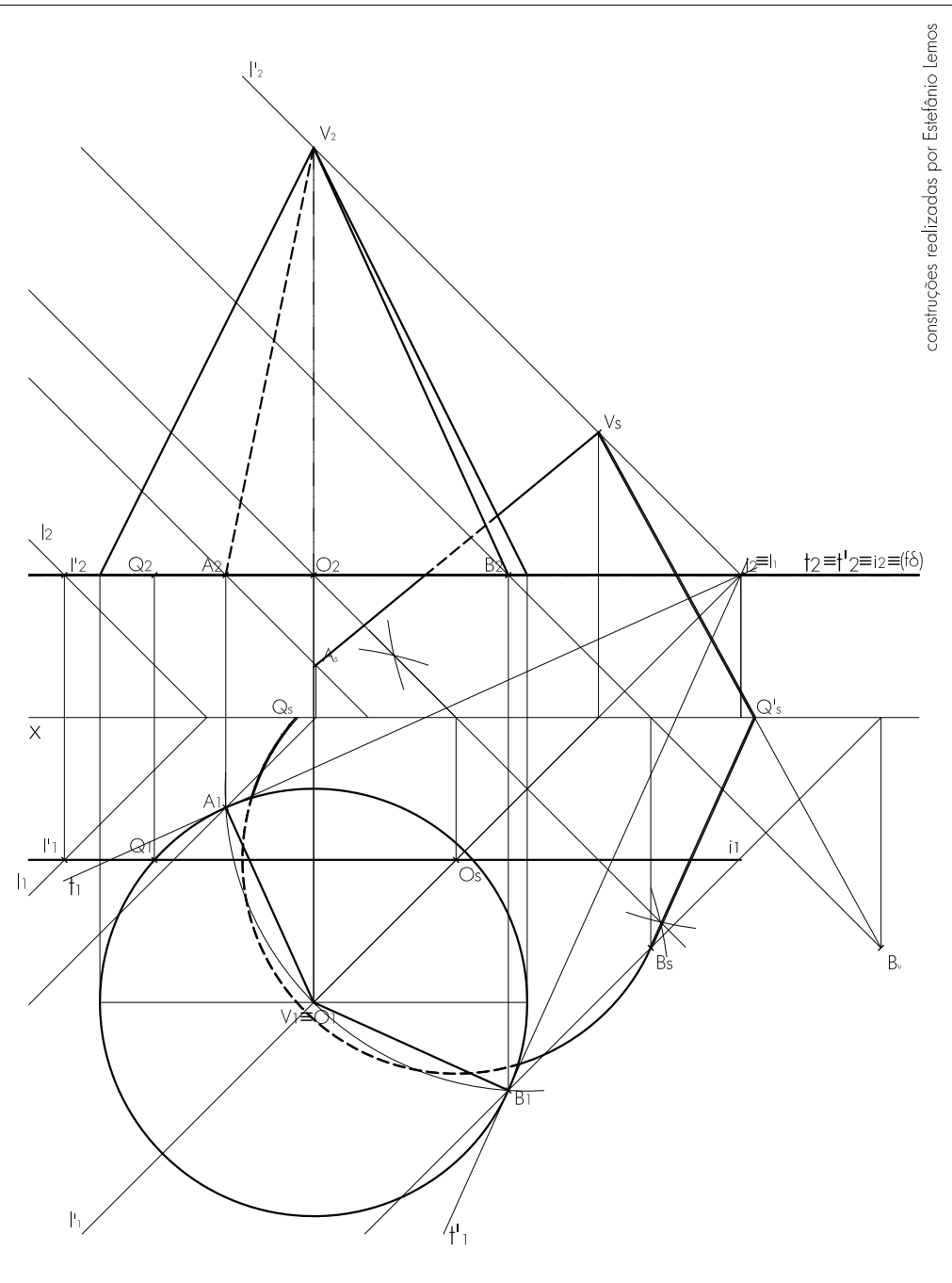
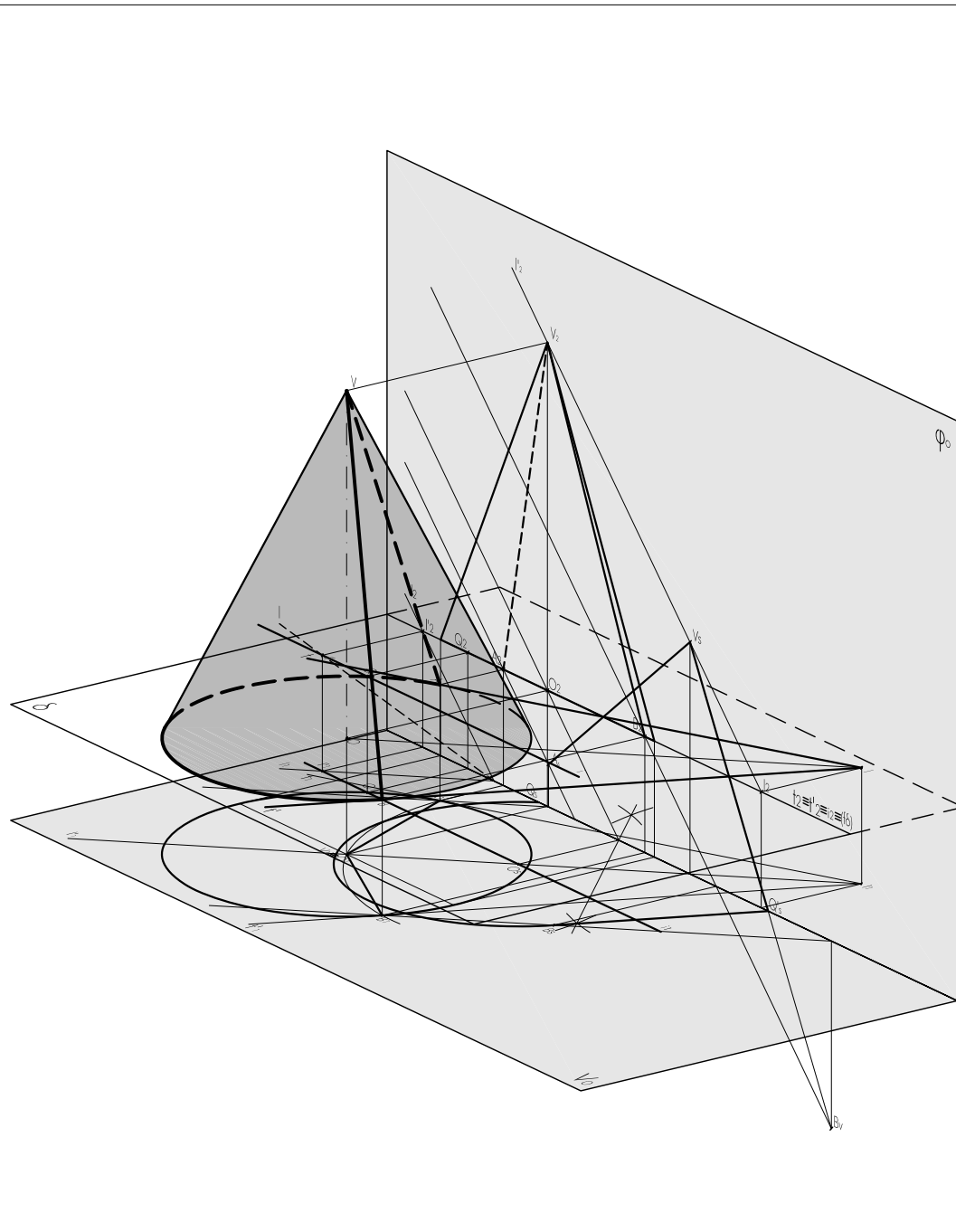


16) traçado da sombra projectada de  $\hat{A}B$  no plano horizontal de projecção com raio  $O_sB_s$  e determinação de  $Q_s$ ;

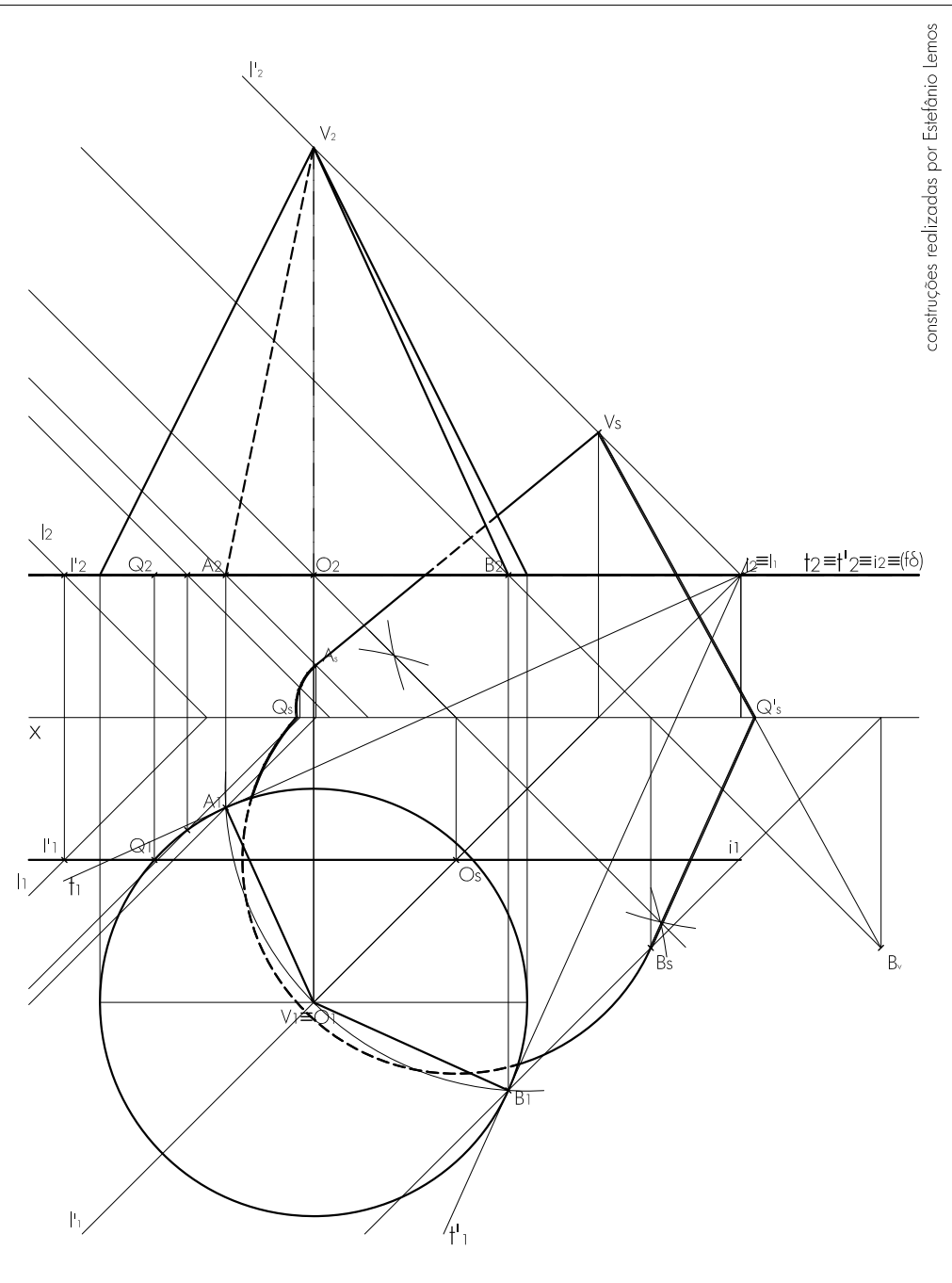
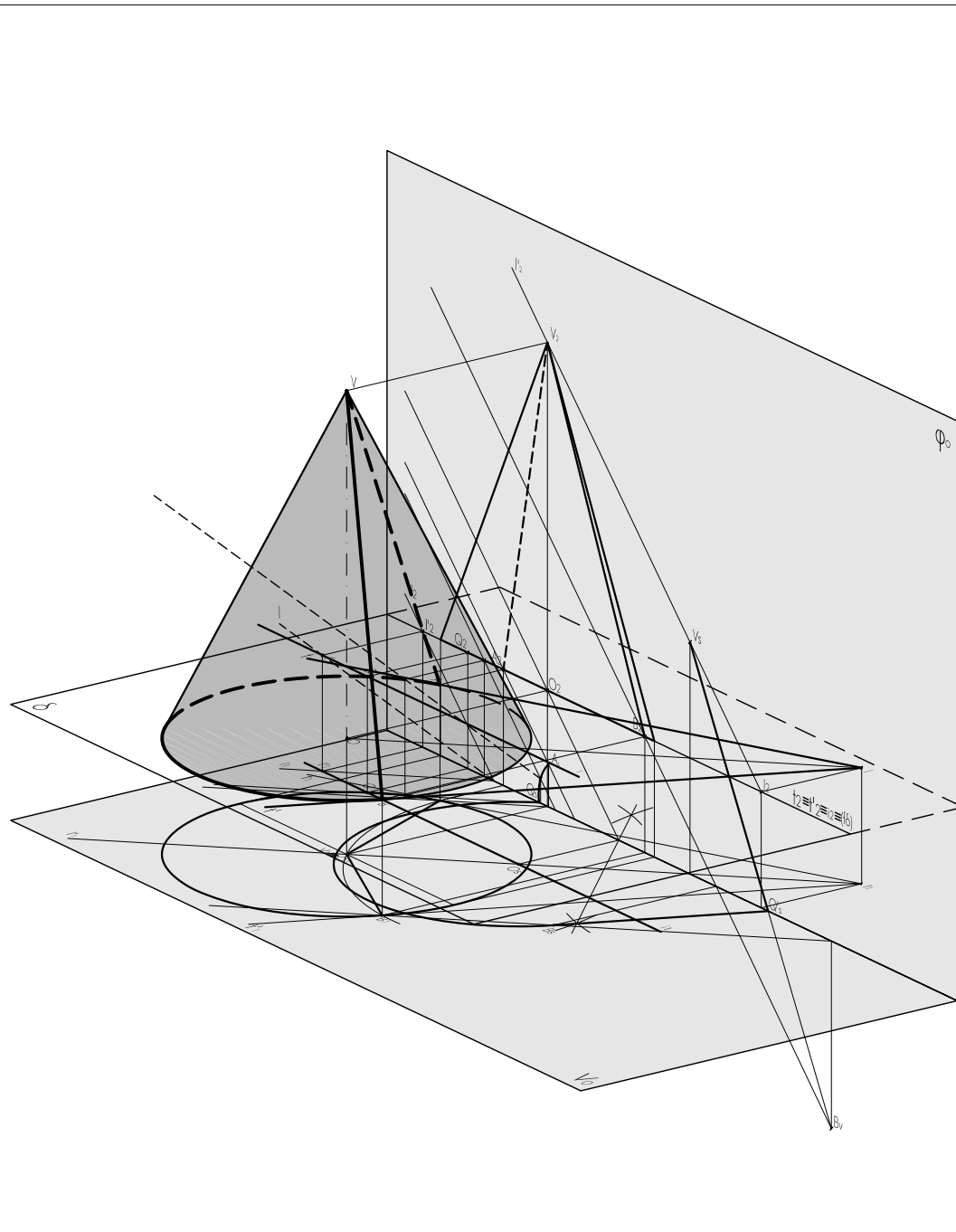


17) traçado da sombra projectada da aresta AV; 18) determinação da sombra virtual de B para definição do ponto de quebra da sombra da aresta BV;

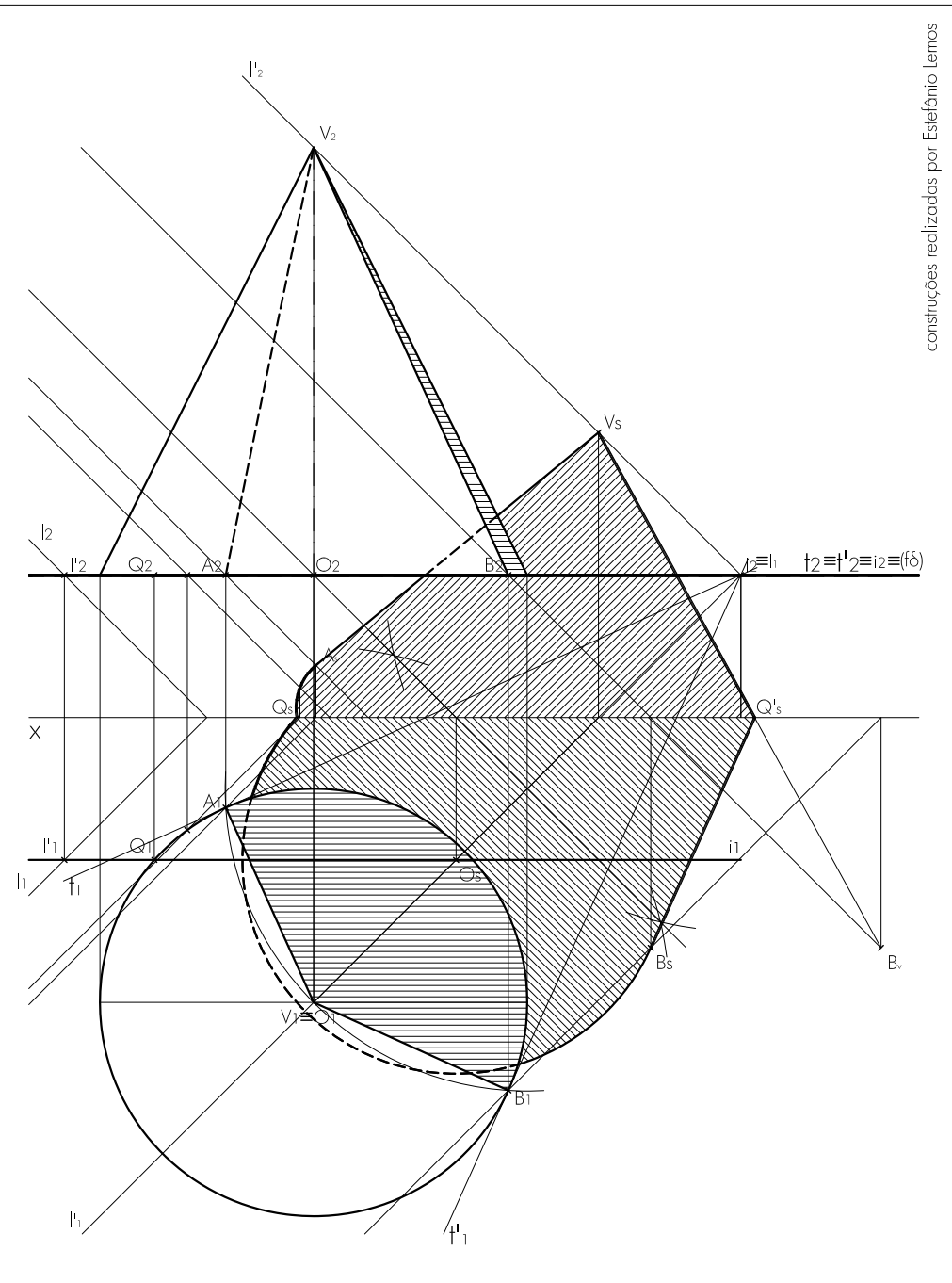
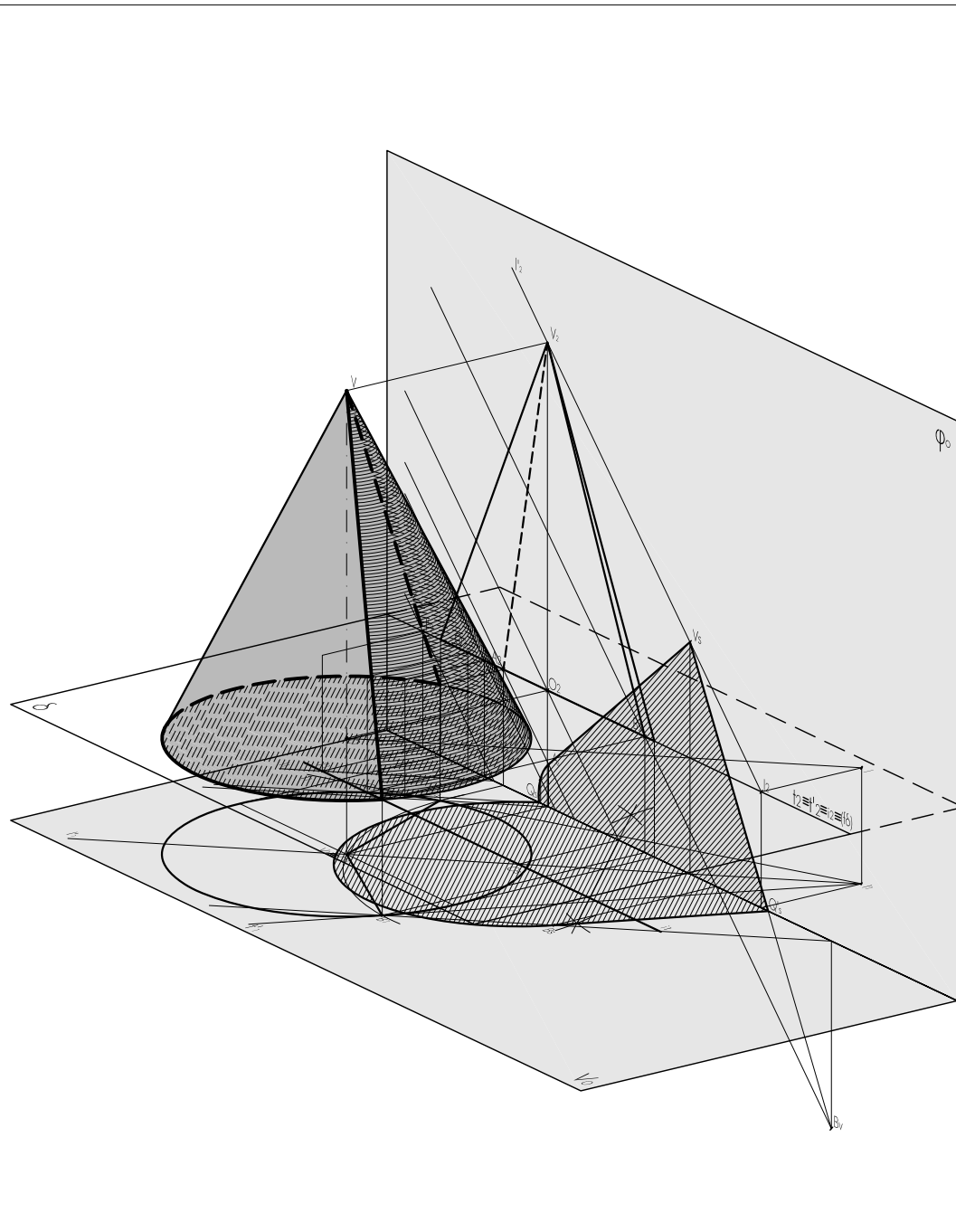




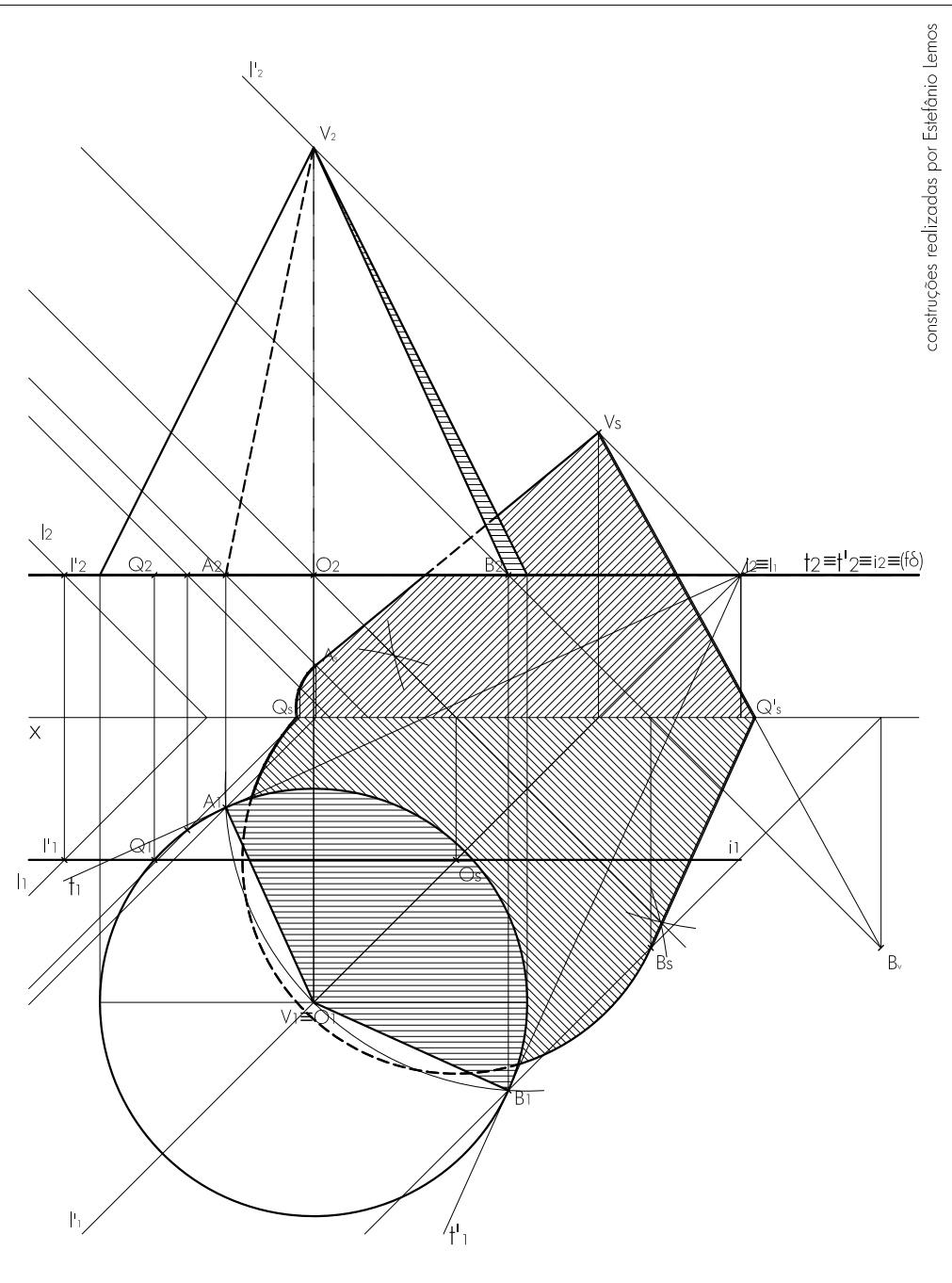
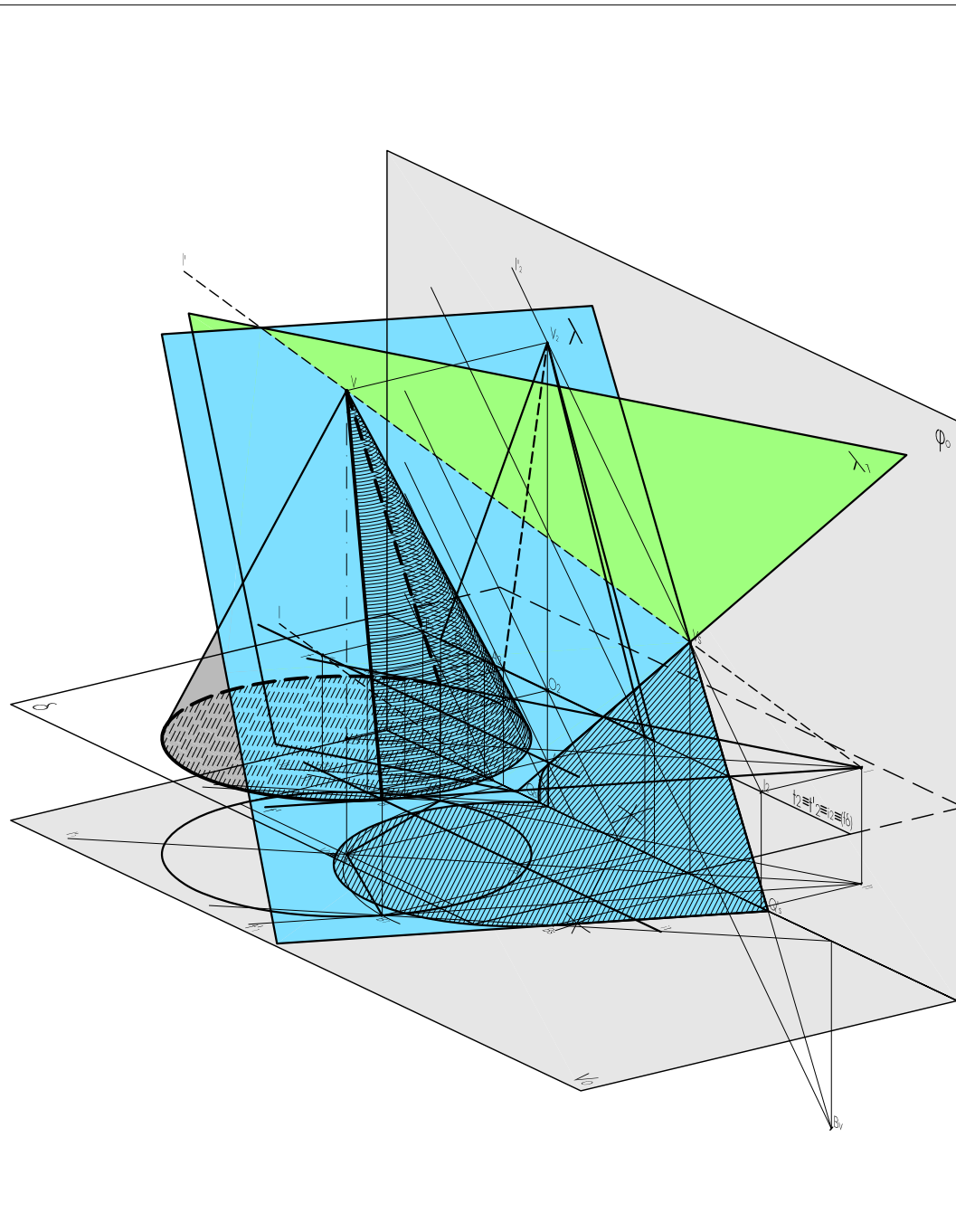
19) determinação de Q's e traçado da sombra projectada da aresta BV;



20) determinação de ponto médio de  $\hat{A}Q$  e traçado da sua sombra projectada no plano frontal de projecção; 21) traçado da sombra projectada de  $\hat{A}Q$ ;



22) marcação do tracejado da sombra projectada; 23) marcação do tracejado da sombra própria da superfície  $\widehat{ABV}$ .



24) inclusão dos planos tangentes luz | sombra,  $\lambda$  e  $\lambda_1$ .