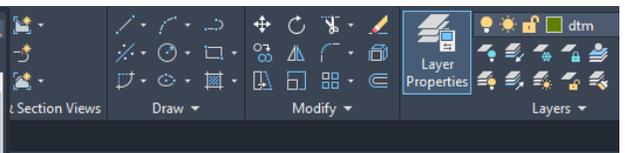
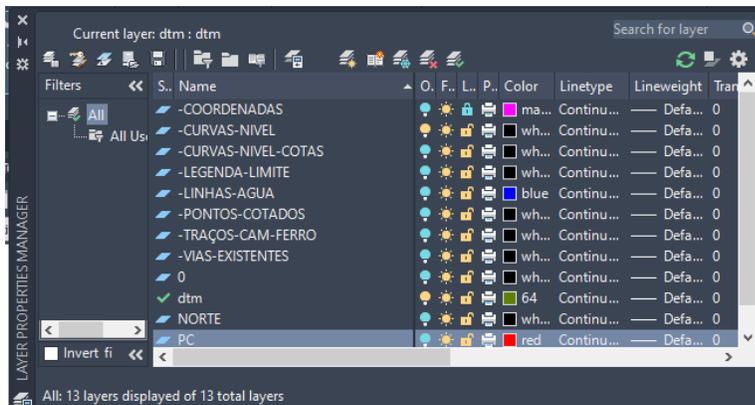
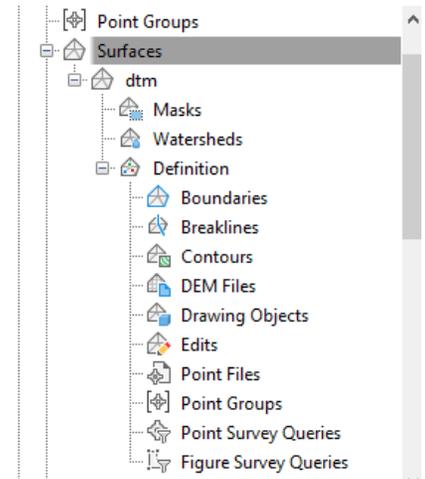
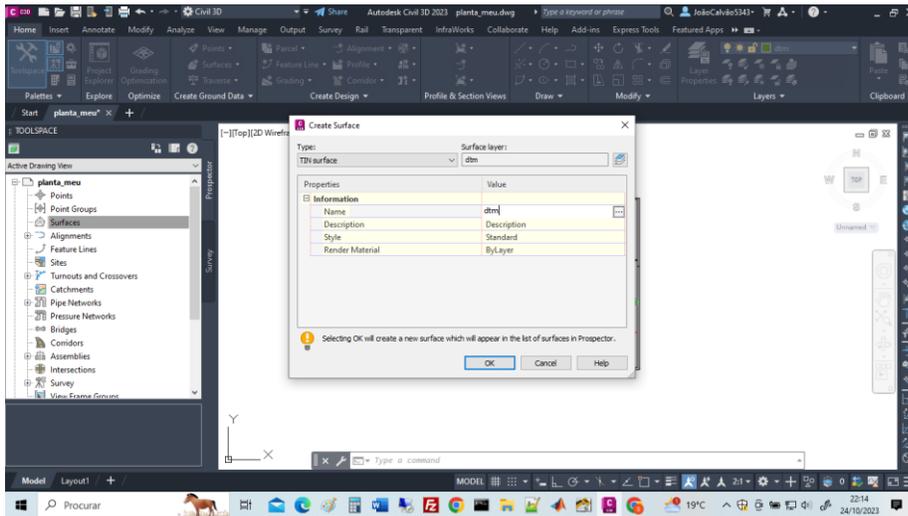
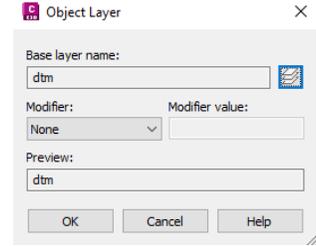
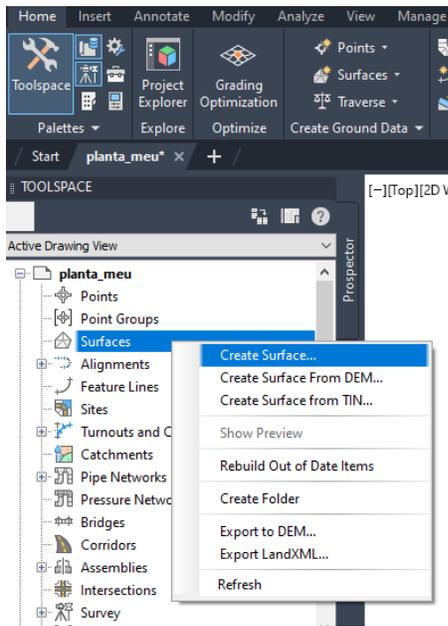
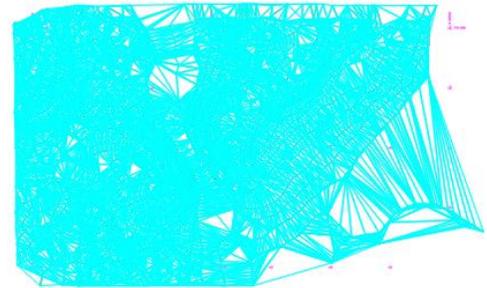
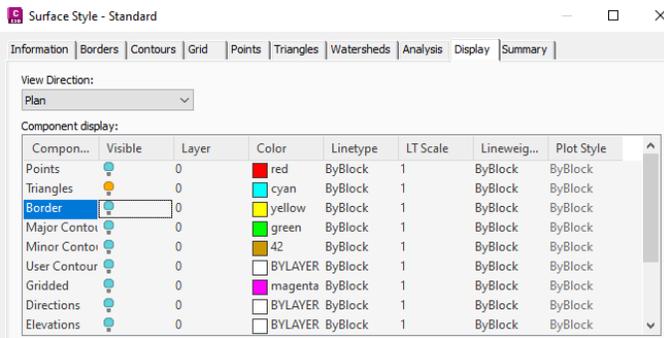
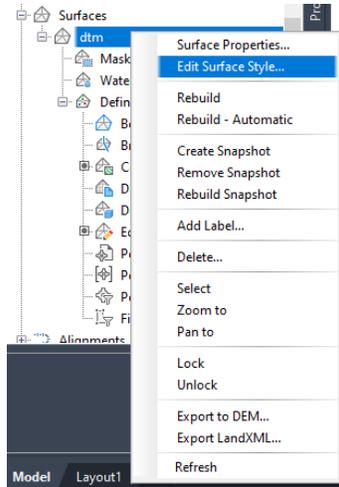
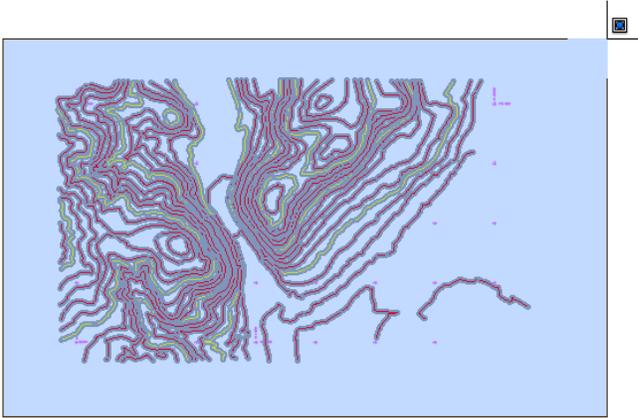
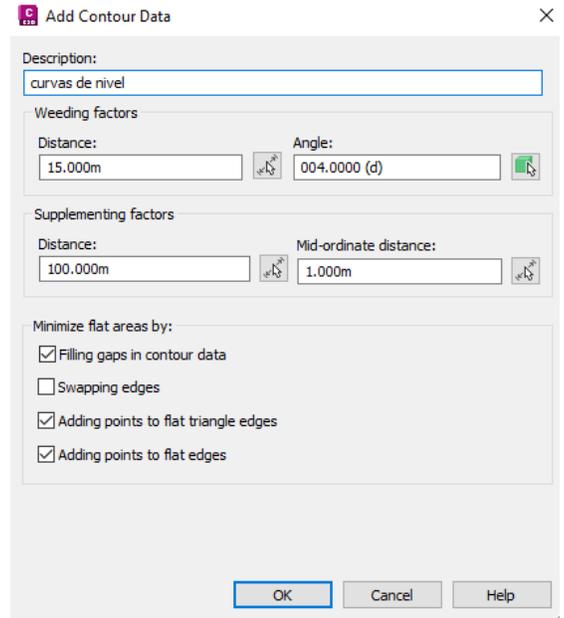
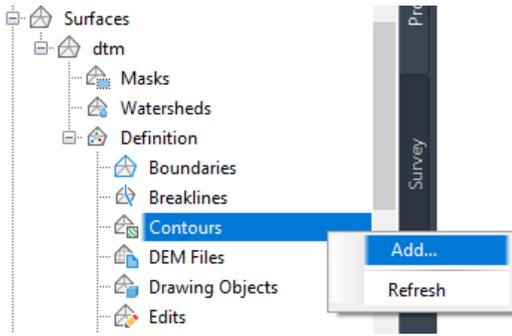


1. Gerar o modelo digital do terreno com a informação gráfica disponível





Current layer: dtm : dtm

Search for layer

Filters << All

S.	Name	O.	F.	L.	P.	Color	Linetype	Lineweight	Tran
	-CURVAS-NIVEL					wh...	Continu...	Defa...	0
	-CURVAS-NIVEL-COTAS					wh...	Continu...	Defa...	0
	-LEGENDA-LIMITE					wh...	Continu...	Defa...	0
	-LINHAS-AGUA					blue	Continu...	Defa...	0
	-PONTOS-COTADOS					wh...	Continu...	Defa...	0
	-TRAÇOS-CAM-FERRO					wh...	Continu...	Defa...	0
	-VIAS-EXISTENTES					wh...	Continu...	Defa...	0
	0					wh...	Continu...	Defa...	0
	dtm					64	Continu...	Defa...	0
	NORTE					wh...	Continu...	Defa...	0
	PC					red	Continu...	Defa...	0
	VIEWPORTS					wh...	Continu...	Defa...	0

All: 13 layers displayed of 13 total layers

Surfaces

- dtm
 - Masks
 - Watersheds
 - Definition
 - Boundaries
 - Breaklines
 - Contours
 - DEM Files
 - Drawing Objects
 - Add...
 - Refresh
 - Edits
 - Point Files

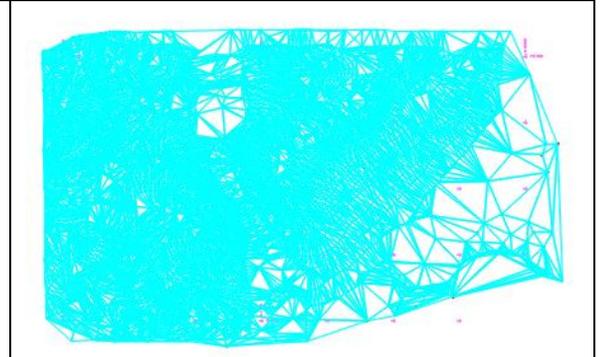
Add Points From Drawing Objects

Object type: Points

Maintain edges from objects

Description: pontos cotados

OK Cancel Help



Current layer: dtm : dtm

Search for layer

Filters << All

S.	Name	O.	F.	L.	P.	Color	Linetype	Lineweight	Tran
	-CURVAS-NIVEL					wh...	Continu...	Defa...	0
	-CURVAS-NIVEL-COTAS					wh...	Continu...	Defa...	0
	-LEGENDA-LIMITE					wh...	Continu...	Defa...	0
	-LINHAS-AGUA					blue	Continu...	Defa...	0
	-PONTOS-COTADOS					wh...	Continu...	Defa...	0
	-TRAÇOS-CAM-FERRO					wh...	Continu...	Defa...	0
	-VIAS-EXISTENTES					wh...	Continu...	Defa...	0
	0					wh...	Continu...	Defa...	0
	dtm					64	Continu...	Defa...	0
	NORTE					wh...	Continu...	Defa...	0
	PC					red	Continu...	Defa...	0
	VIEWPORTS					wh...	Continu...	Defa...	0

Surfaces

- dtm
 - Masks
 - Watersheds
 - Definition
 - Boundaries
 - Breaklines
 - Add...
 - Refresh
 - Contours
 - DEM Files

Add Breaklines

Description: vias de comunicação

Type: Standard

File link options: Break link to file

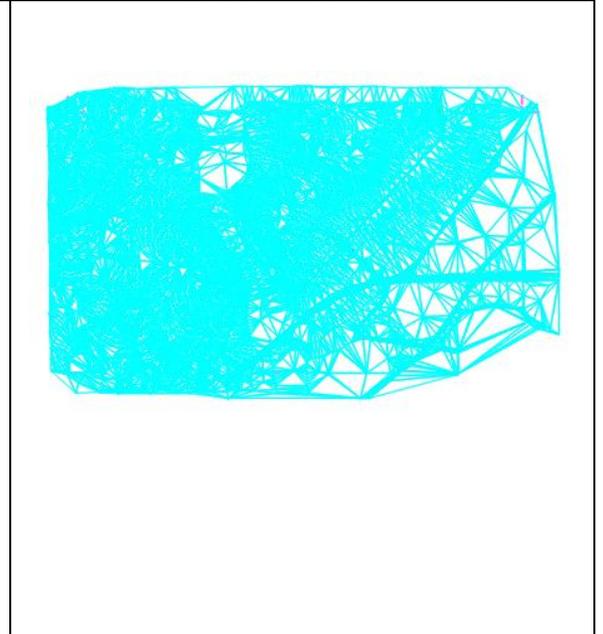
Weeding factors

Distance: 15.000m Angle: 004.0000 (d)

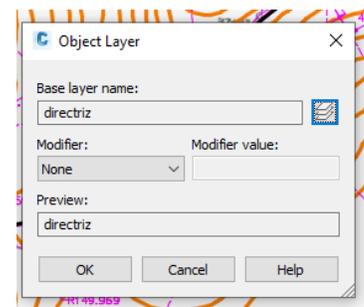
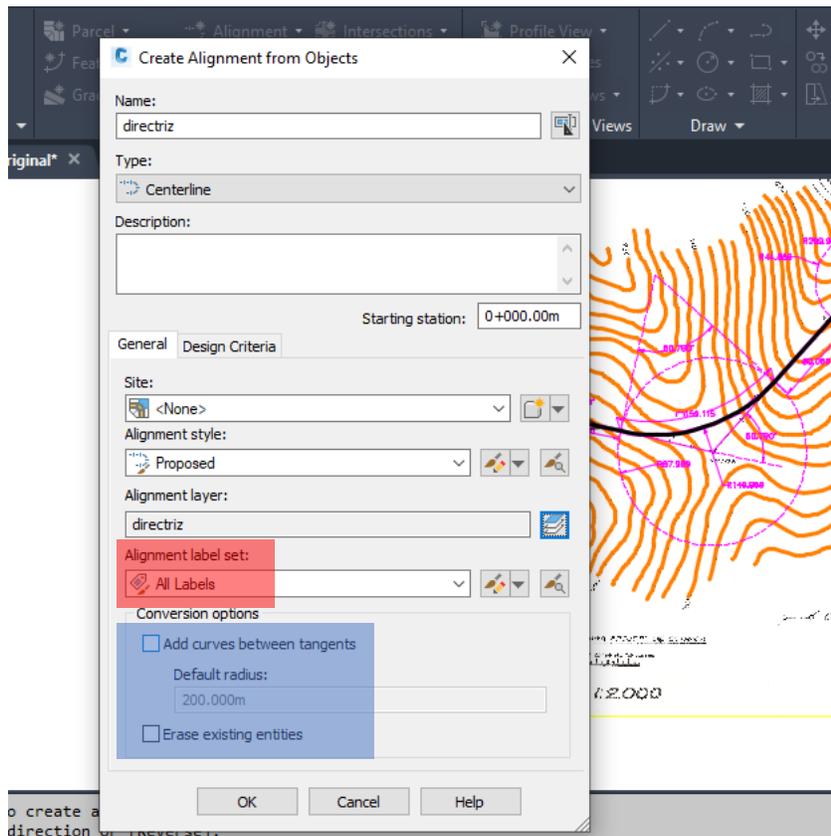
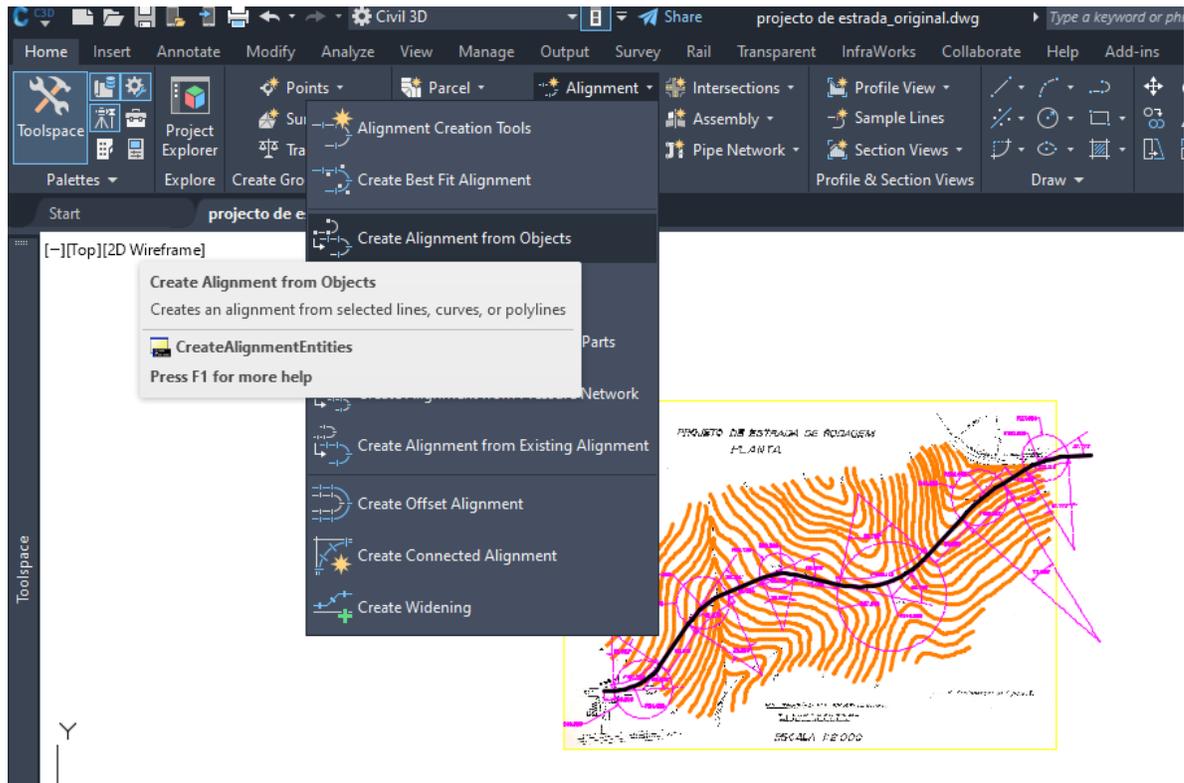
Supplementing factors

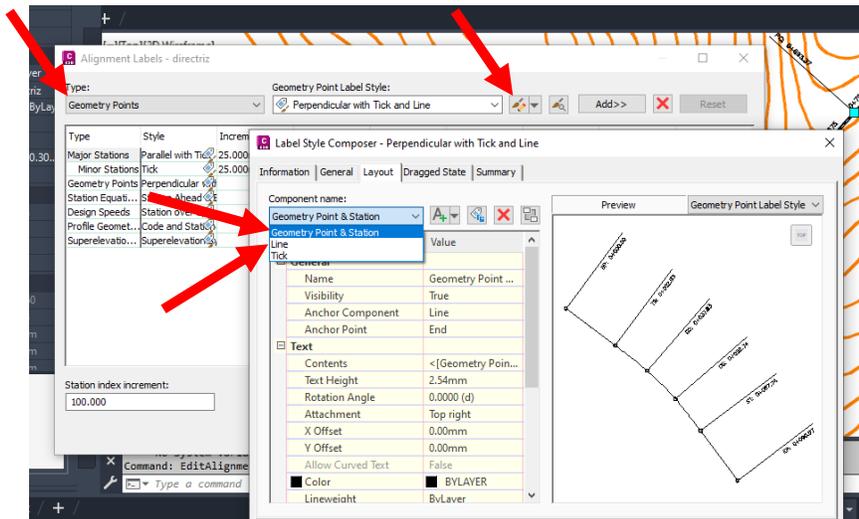
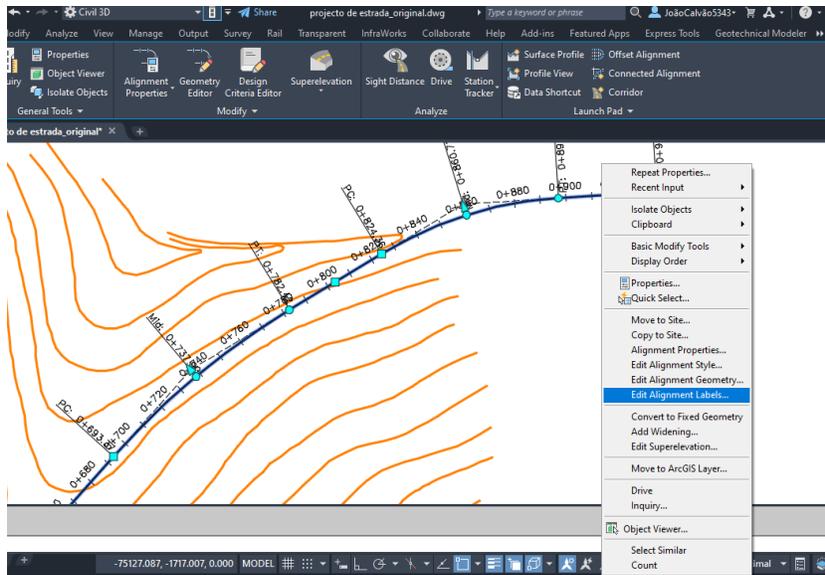
Distance: 100.000m Mid-ordinate distance: 1.000m

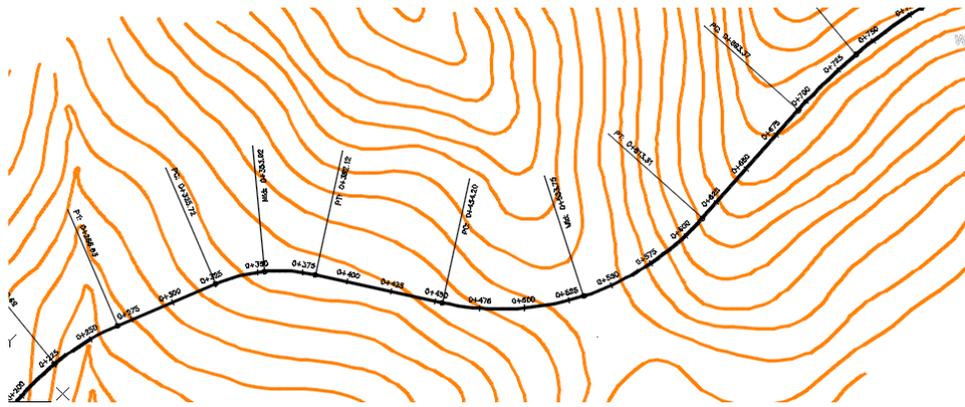
OK Cancel Help



2. Definir a directriz: criar layer directriz; conforme o tipo de estrada, ligar as tangentes com arcos circulares e introduzir clotóides; unir estes elementos numa polyline única (join)
3. Gerar o alinhamento (directriz)







Alignment Labels - directriz

Type: Geometry Points

Label Style Composer - Perpendicular with Tick and Line

Component name: Geometry Point & Station

Property	Value
General	
Name	Geometry Point ...
Visibility	True
Anchor Component	Line
Anchor Point	Start
Text	
Contents	<[Geometry Poin...
Text Height	2.54mm
Rotation Angle	0.0000 (d)
Attachment	Top right
X Offset	0.00mm
Y Offset	0.00mm
Allow Curved Text	False
Color	BYLAYER
Lineweight	BvLaver

Station index incr: 100.000

OK Cancel Apply Ayuda

Alignment Labels - directriz

Type: Geometry Points

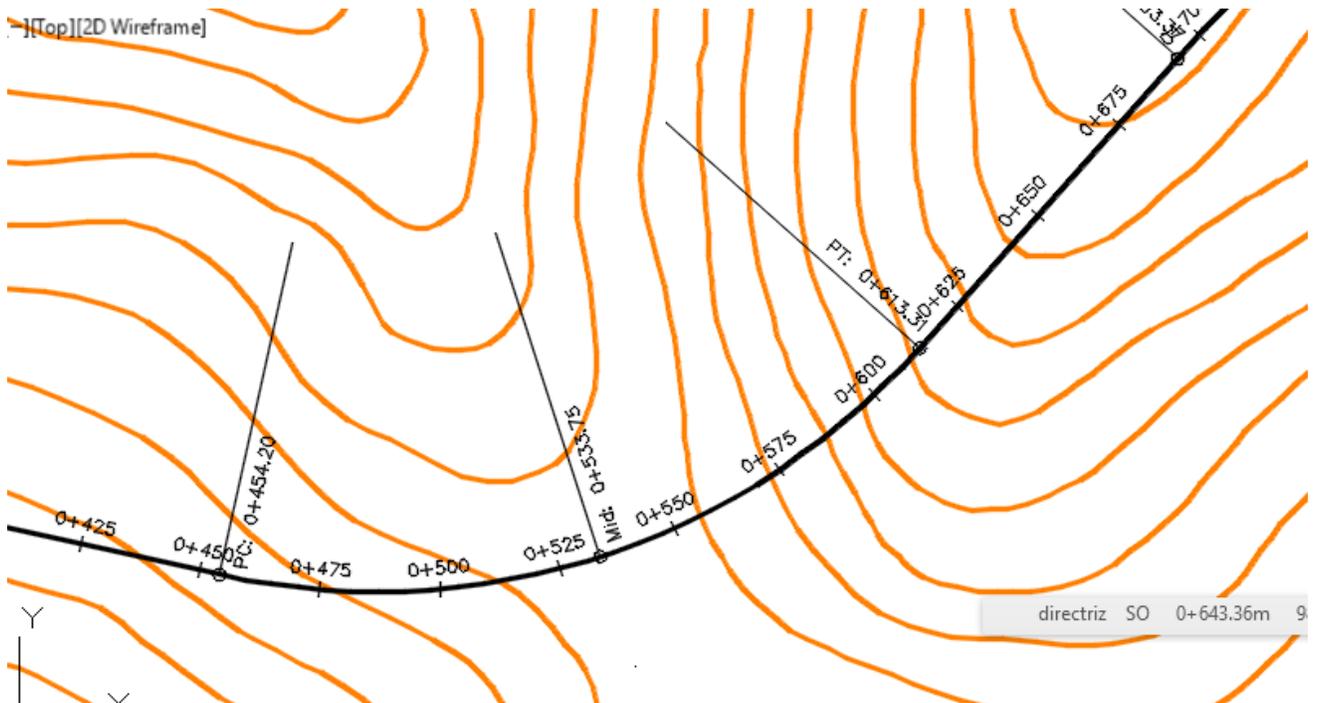
Label Style Composer - Perpendicular with Tick and Line

Component name: Geometry Point & Station

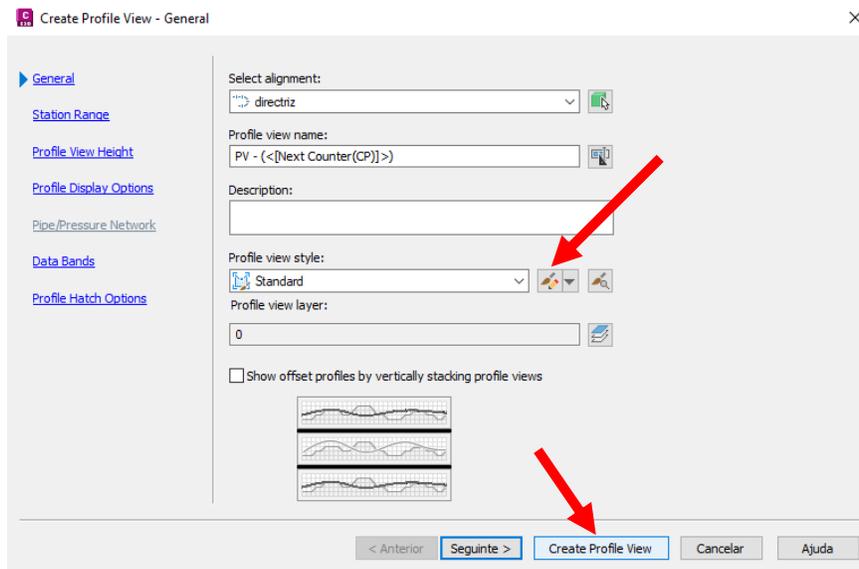
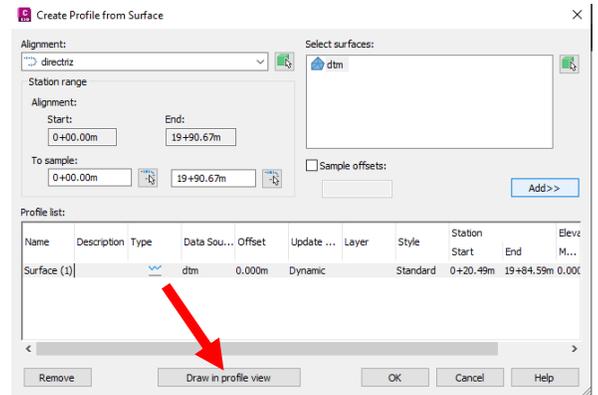
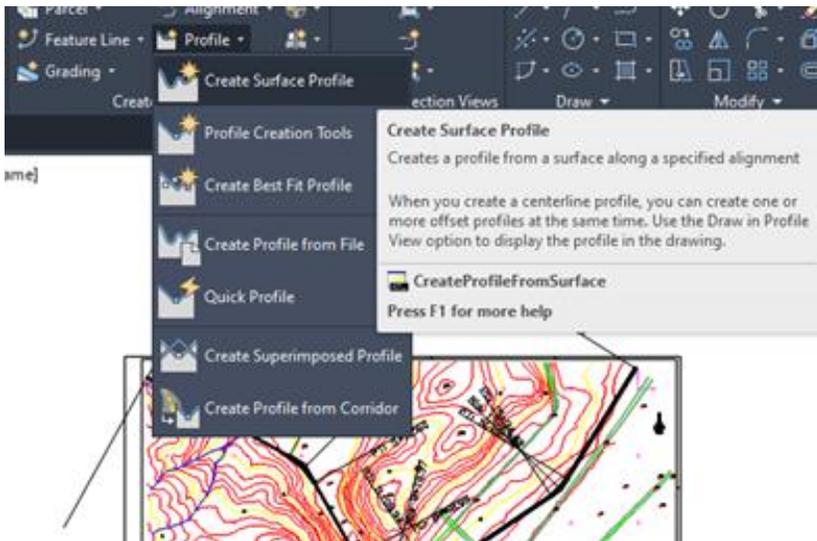
Property	Value
General	
Name	Geometry Point ...
Visibility	True
Anchor Component	Line
Anchor Point	Start
Text	
Contents	<[Geometry Poin...
Text Height	2.54mm
Rotation Angle	0.0000 (d)
Attachment	Top left
X Offset	0.00mm
Y Offset	0.00mm
Allow Curved Text	False
Color	BYLAYER
Lineweight	BvLaver

Station index incr: 100.000

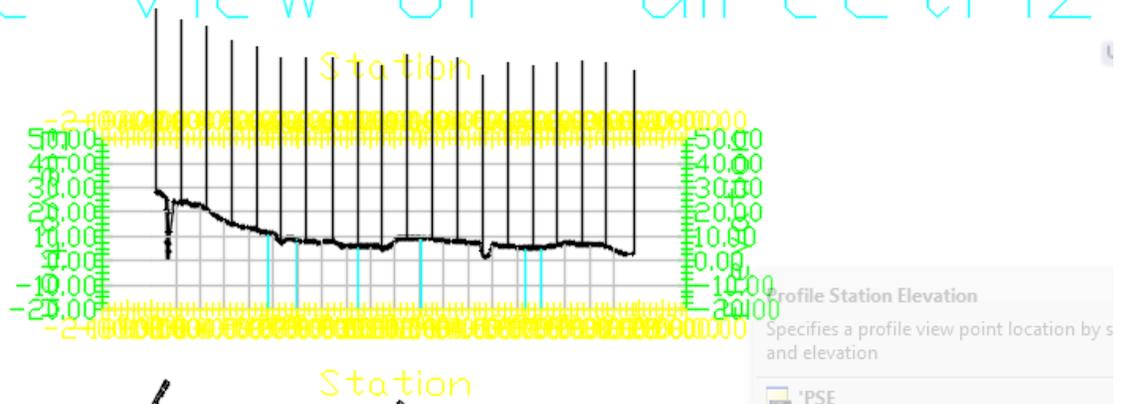
OK Cancel Apply Ayuda

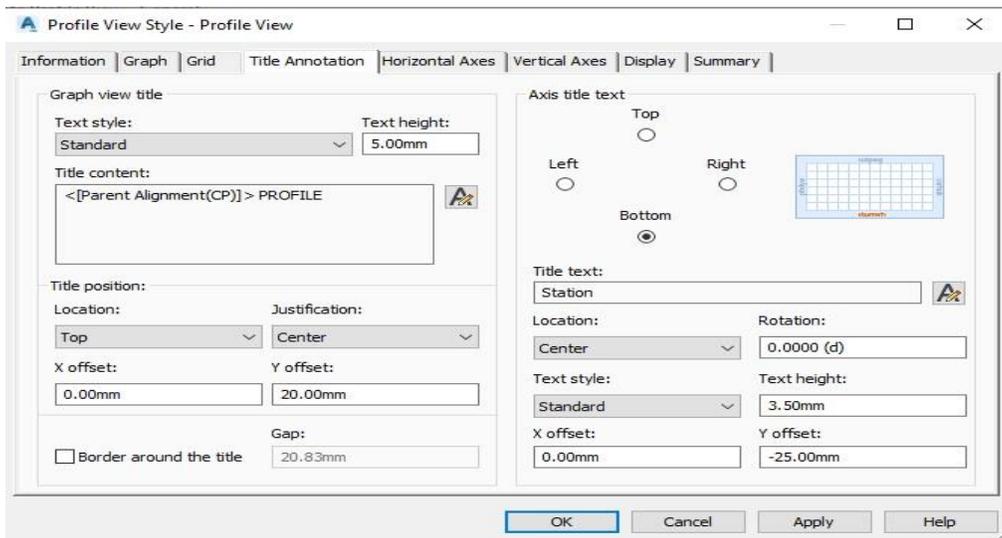
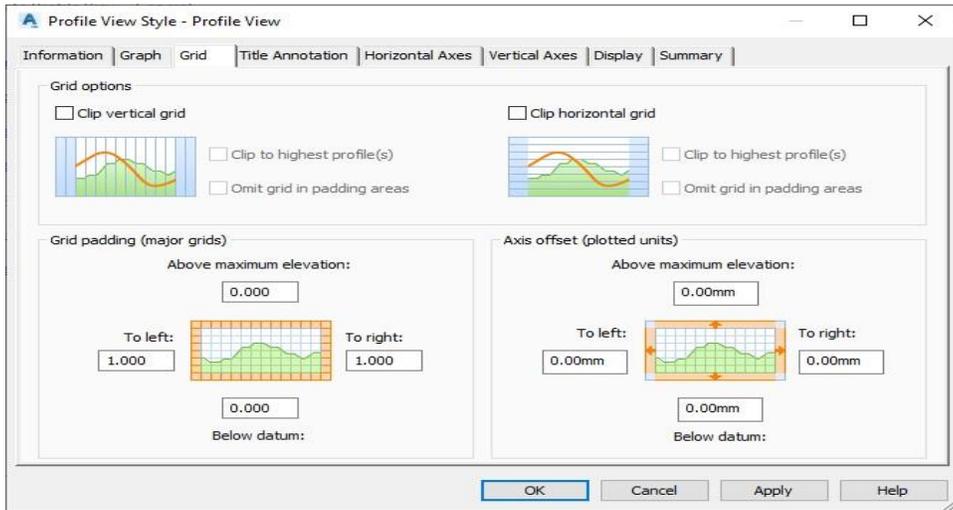
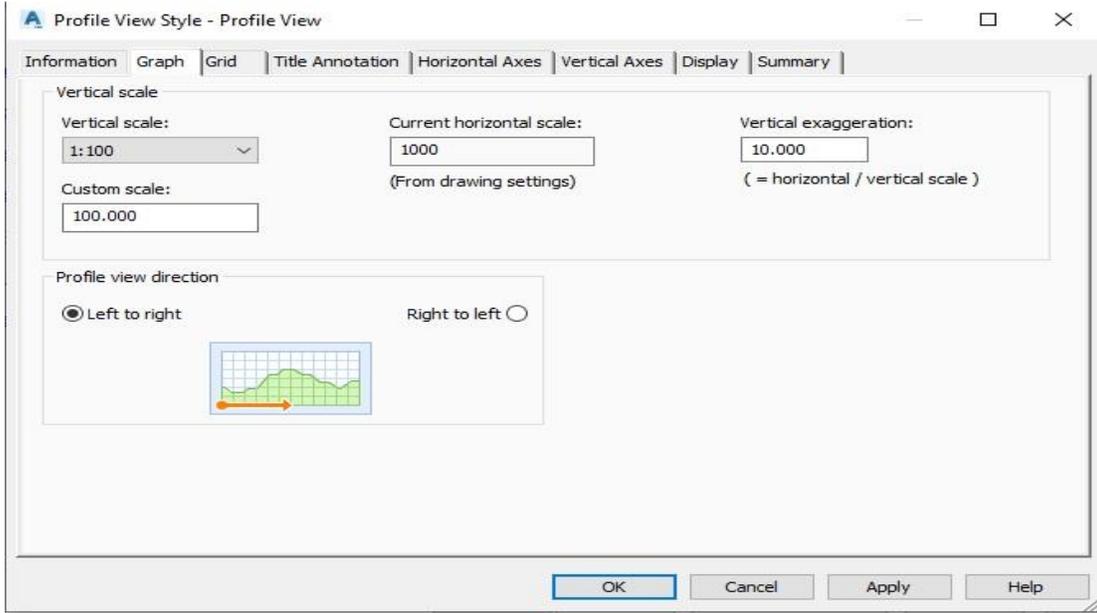


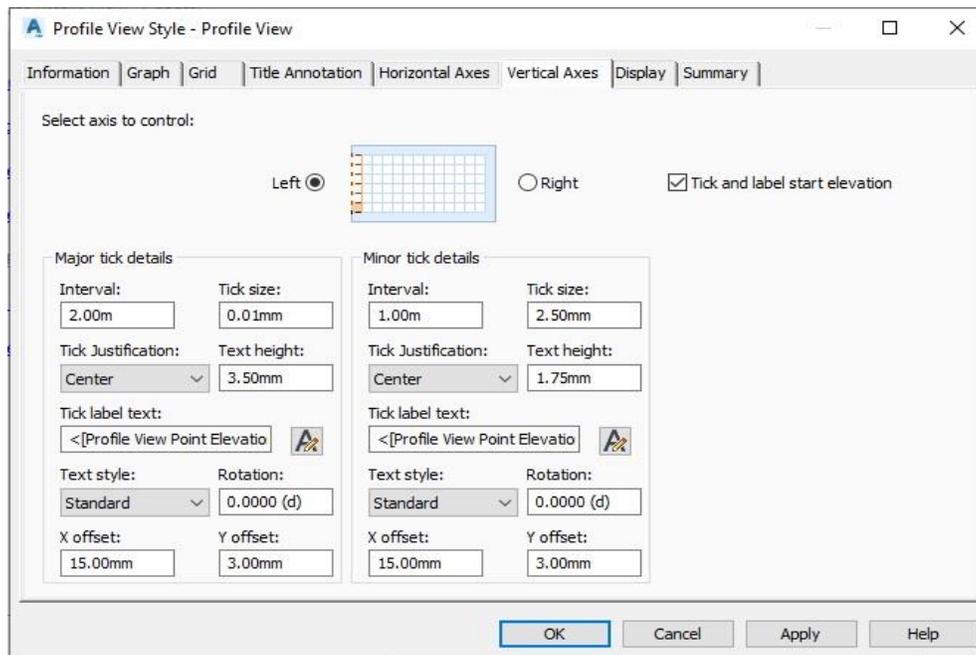
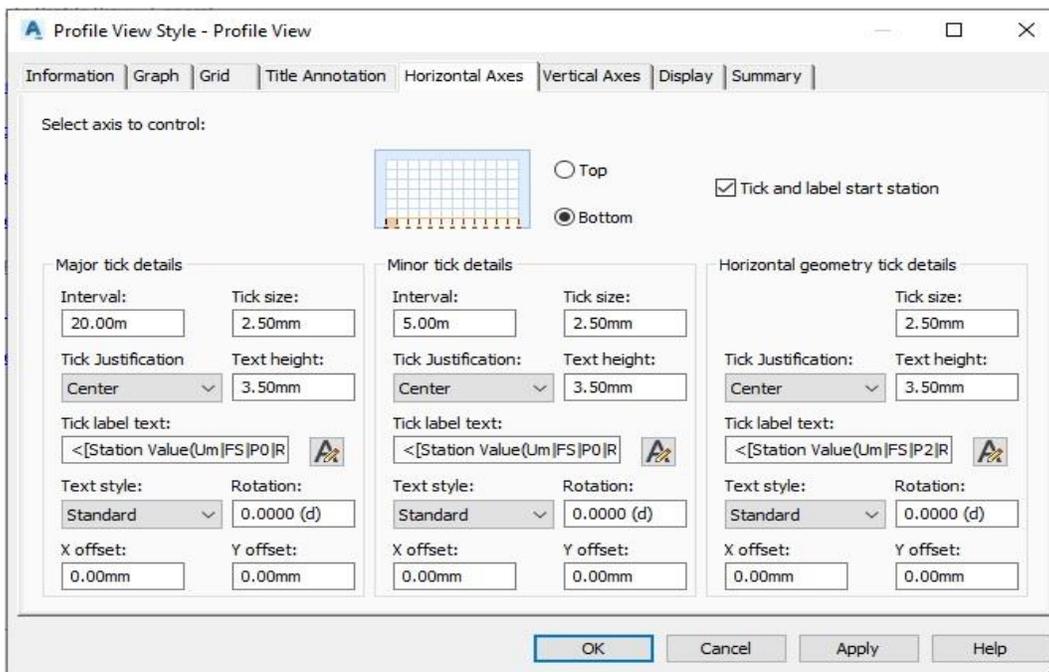
4. Gerar o perfil longitudinal do terreno ao longo do alinhamento (directriz)



Profile View of directriz







5. Introduzir trainéis; calcular os declives respectivos; definir desenvolvimentos das curvas verticais e calcular pontos sobre elas.