

Georeferencing a PC Traverse Drawing

7.15

In this Chapter you will learn

- How to add coordinates to a legal description in PC Traverse so that any drawing you make automatically appear in the correct location and scale in ArcGIS

1. Georeferencing your PC Traverse drawing

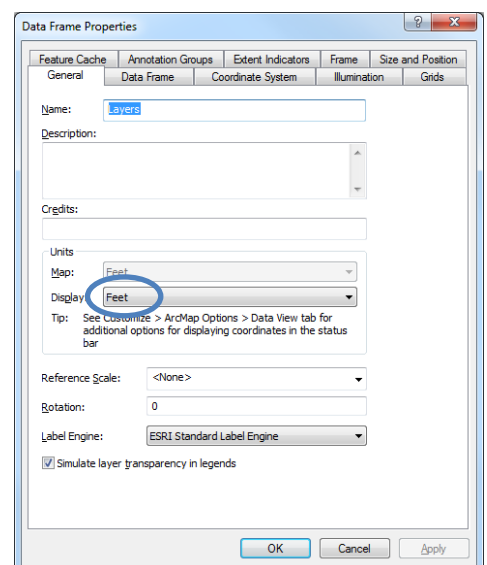
There are a number of software packages that allows users to enter legal descriptions into the computer. For example, ArcGIS has COGO tools (at the ArcEditor and ArcInfo functionality levels) or users can purchase stand-alone packages like PC Traverse or Greenbriers' Net Deed Plotter. This topic explains how you can add coordinates to the Net Deed Plotter Deed Call Editor so that after you export a drawing to a .dxf format it automatically appears in the correct scale and location on your map when you bring it into ArcMap.

In this tutorial we will use the following legal description:

Commencing at the SW corner of Section 33, T2S R2W. Thence N 0° E 500 feet, then N 90° E 1,000 feet. Thence S 0° W 500 feet; thence S 90° W 1,000 feet to SW corner of the section.

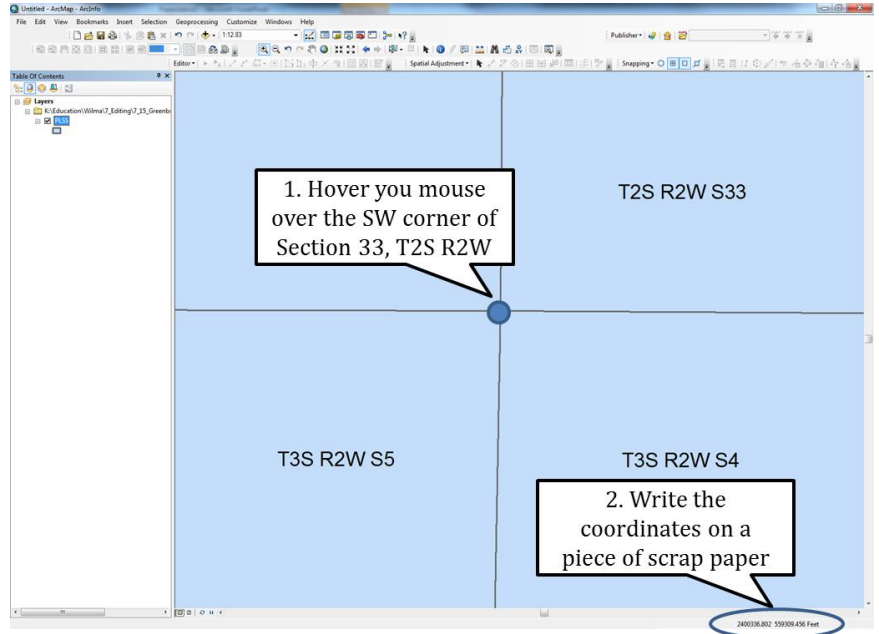
Exercise 1: Finding and then adding coordinates to net deed plotter

1. Open ArcMap and add the PLSS shapefile.
2. Right-click on the word "Layers" to open the properties for this data frame. Go to the "General" tab as shown on the right and make sure that the Display units are set to feet.
3. Click on the "Coordinate System" tab and make sure your coordinate system is set to Idaho State Plane West, NAD 83 with units expressed in US feet.
4. Right-click on the PLSS layer and choose "Label". You should now be able to see the township, range and section numbers.
5. To find the coordinates of the point of beginning zoom closely (for example to a scale of 1:10) to the SW corner of Section 33, T2S R2W.



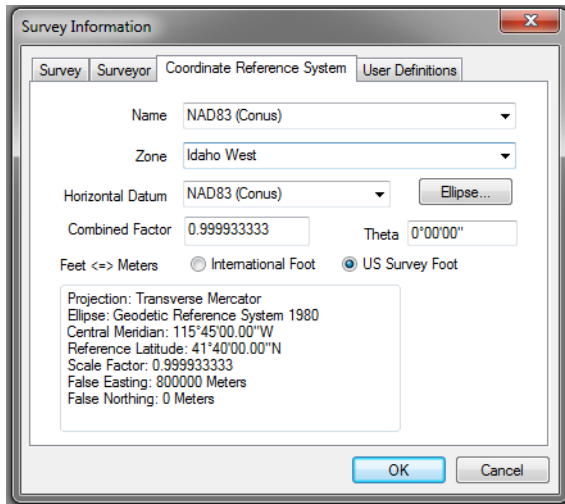
6. Hover your mouse over the Southwest corner of section 33 and write down the coordinates on a piece of scrap paper as shown on the right.

7. In our example the coordinates are 2400336.802 East and 559309.456 North. Since we set our map units to feet, we know that those coordinates are also given to us in feet. Minimize ArcMap (but leave it running).

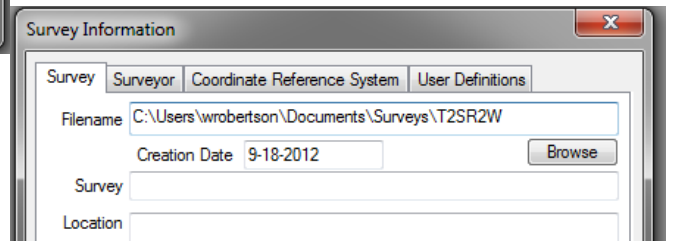


8. Open PCTraverse and click on New Survey in the dialog box shown on the right

9. Click on the “Coordinate Referencing System” tab and set the coordinate system to NAD83, US Feet, Idaho West as shown below.

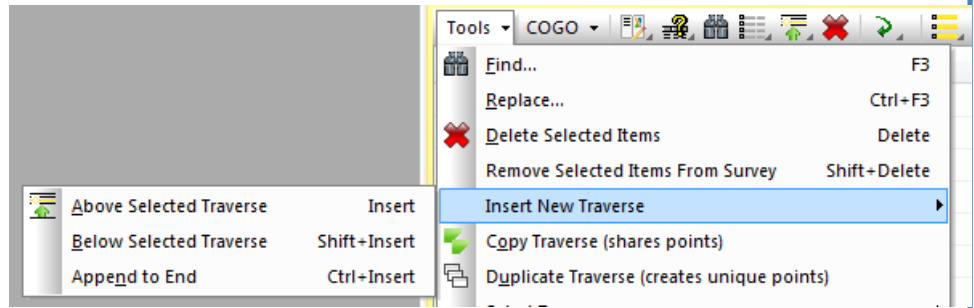


10. Click on the Survey tab and give your survey a name as shown on the right.



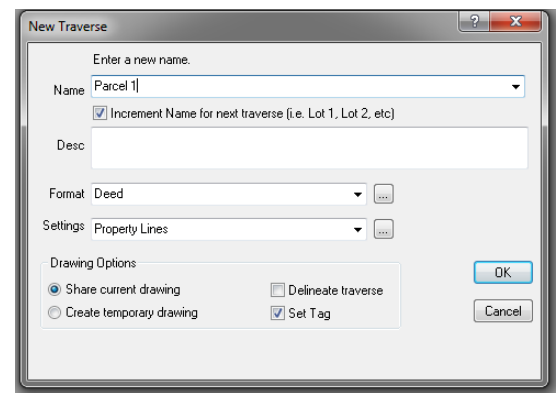
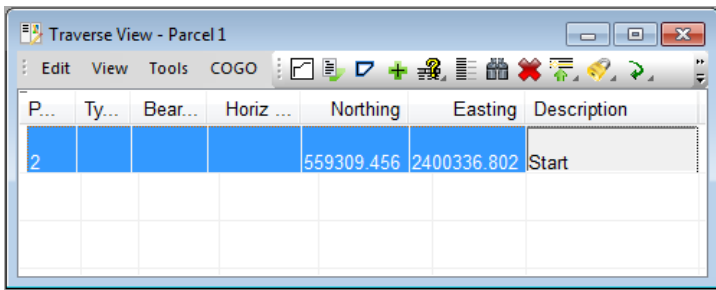
11. Click OK.

12. Click on "Traverses" along the top of your screen and then click Tool > Insert New Traverse as shown on the right. Choose Below Selected Traverse.



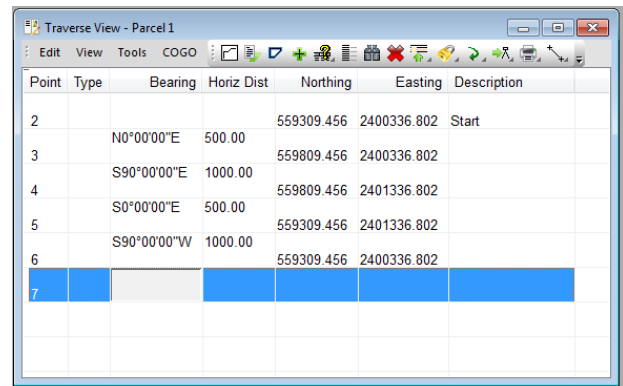
13. Set up the traverse as shown on the right. Click OK.

14. Enter the starting coordinates you wrote down in step 6 above. Those coordinates are entered in the figure shown below.

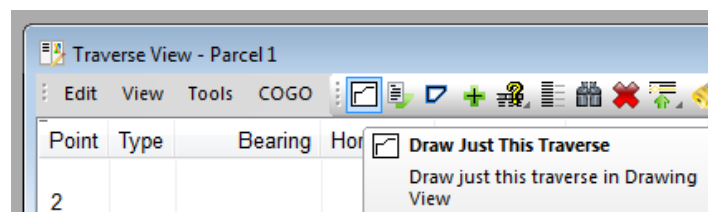


15. Click enter.

16. Add all the calls from the legal description found on the first page of this exercise. Note that the first bearing, for N 0° E, is typed in as 100.0000. The first 1 denotes the NE quadrant, the remaining "00.0000" corresponds to 0 degrees, 0 minutes and 0 seconds. The last call, which is for S 90° W is entered as 390.0000. The "3" denotes the SW quadrant, the 90 is for the 90 degrees, and the last "0000" for zero minutes and zero seconds. The result is shown in the figure on the right.

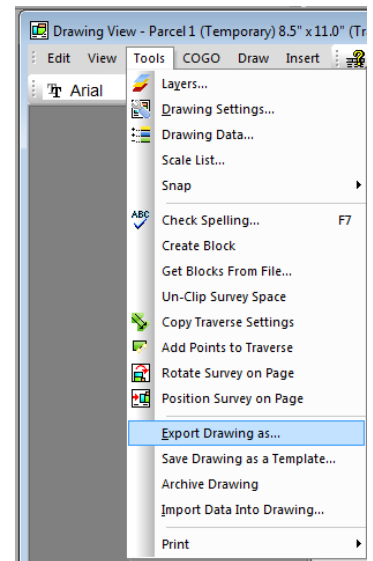
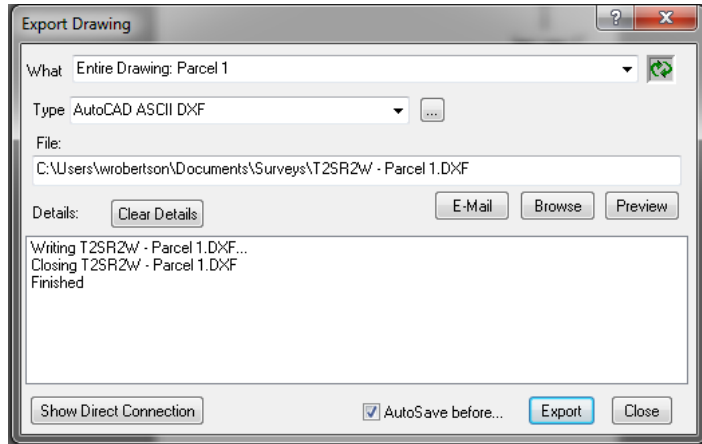


17. Click on the "Draw Just This Traverse" button.



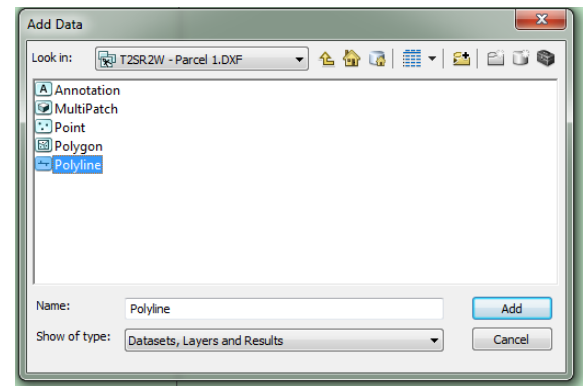
18. In the Drawing View click on Tools > Export Drawing as... as shown on the right.

19. Save your parcel as Type AutoCAD ASCII DXF and accept the default name. Click Export as shown below.



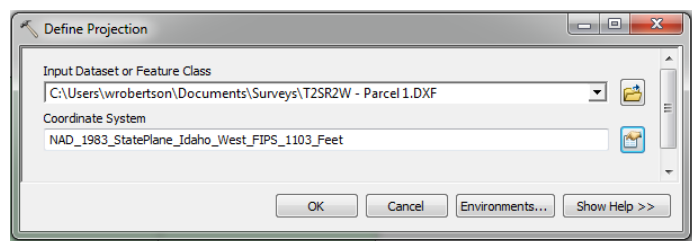
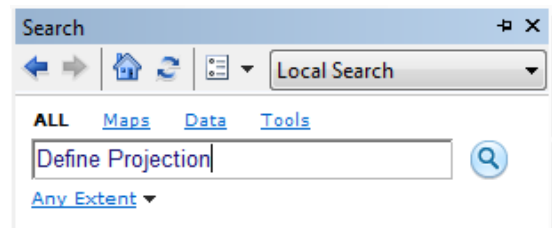
20. Go back to ArcMap and click the “Add Data” button. Navigate to the DXF file you created in the previous step and add the polyline layer from the t2sr2w.dfx group to your map.

21. Even though you get an “unknown spatial reference” warning, you know your drawing is in Idaho State Plane west because that is how you set it up in step 9. Since your ArcMap is also in this projection, the drawing will show up in the right spot.

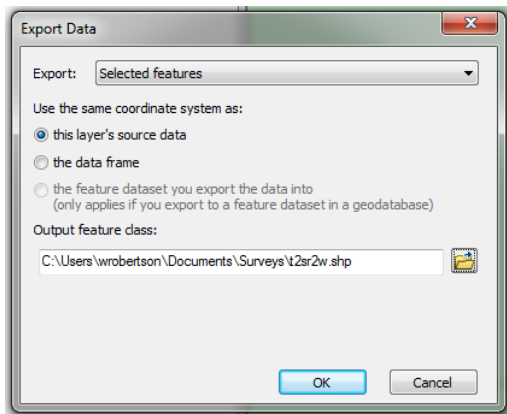


Note that if your map is in a different projection, for example in IDTM83, then you need to assign a projection to the dxf files. Do this as follows:

- Remove the dxf layer from your map
- Go to “Windows” along the top of your screen and click on “Search”. Then do a search on “Define projection” as shown on the right.
- In the search results click on “Define Projection (Data Management)” to open the tool
- Populate the tool as shown on the right.
- Click OK. Then click on the Add Data button and add the .dxf to your map.



22. Right-click on the T2SR2W - Parcel 1.DXF Polyline layer and click on "Open Attribute Layer".
23. Select all the records from the TPCLines_ Layer as shown on the right.
24. Right-click on the T2SR2W layer again and choose Data > Export data. Export the selected features to a new shapefile as shown below.



FID	Shape	Entity	Layer	Color	Linetype	Elevation	LineWt	RefName
1	Polyline	LWPolyline	0_	7	Continuous	0	25	
2	Polyline	LWPolyline	0_	7	Continuous	0	25	
3	Polyline	Insert	0_	7	Continuous	0	25	North_Arrow_1
4	Polyline	LWPolyline	0_	7	Continuous	0	25	
5	Polyline	Line	0_	7	Continuous	0	25	
6	Polyline	Line	0_	7	Continuous	0	25	
7	Polyline	Line	0_	7	Continuous	0	25	
8	Polyline	Line	0_	7	Continuous	0	25	
9	Polyline	Solid	0_	7	Continuous	0	25	
10	Polyline	Solid	0_	7	Continuous	0	25	
11	Polyline	Solid	0_	7	Continuous	0	25	
12	Polyline	Solid	0_	7	Continuous	0	25	
13	Polyline	LWPolyline	0_	7	Continuous	0	25	
14	Polyline	Line	TPCLines_	254	DASHED	0	0	
15	Polyline	Line	TPCLines_	254	DASHED	0	0	
16	Polyline	Line	TPCLines_	254	DASHED	0	0	
17	Polyline	Line	TPCLines_	254	DASHED	0	0	

25. When prompted add the new shapefile to your map.