TPC Desktop Series

Point Codes Learning Guide

1/17

NOTICE

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Typography

We will be using the following typography to distinguish items in the text:

[Enter]	Brackets indicate keys on the keyboard.
flexibility	Italics are used to highlight words for more emphasis.
Lot 2	Numbers or text that you enter.

System Requirements

This version of TPC Desktop requires Windows 10 / 8.1 / 8 / 7 / Vista and Internet Explorer Version 6.0 or later. We recommend you have 2 GB of RAM 32-bit OS) 4 GB RAM (64-bit OS) and 60 MB of free hard disk space in which to install the program. **An internet connection is required for program validation.**

Important Licensing Information

Our License Agreement allows you to use TPC on only one computer at a time unless you purchase additional licenses. We do offer one courtesy installation for an additional home or field computer, *but not for a second user* and assuming that the two programs are not being used at the same time. To request a courtesy license contact Traverse PC.

Point Codes

►This chapter demonstrates:

- ➢ Defining Point Codes
- ➢ Using the Traverse View to evaluate field data
- ➢ Using the Drawing View to evaluate field data
- ➢ Using the Points Manager to evaluate field codes
- ➢ Creating point codes
- ➢ Managing point codes
- ➢ Assigning Traverse Settings to point codes
- ➢ Sorting points into traverses
- ➢ Viewing the point code traverses
- ➢ Sorting points within traverses
- ➢ Sorting points by position
- ➢ Creating "Point Code" Traverses Manually
- ➢ Finishing the Survey
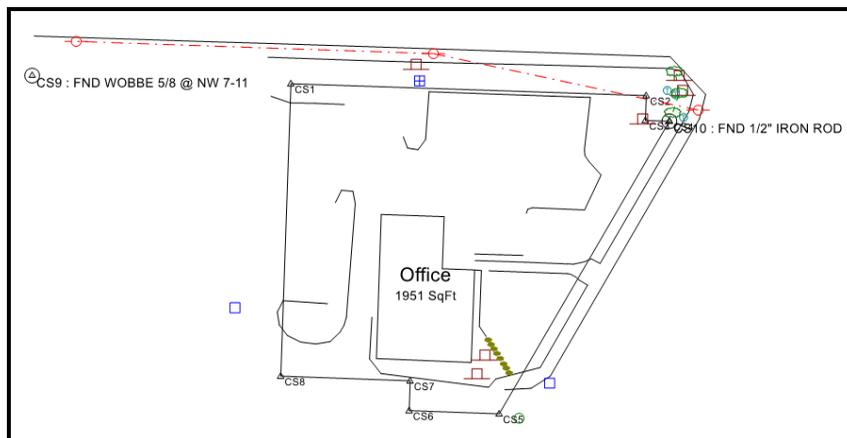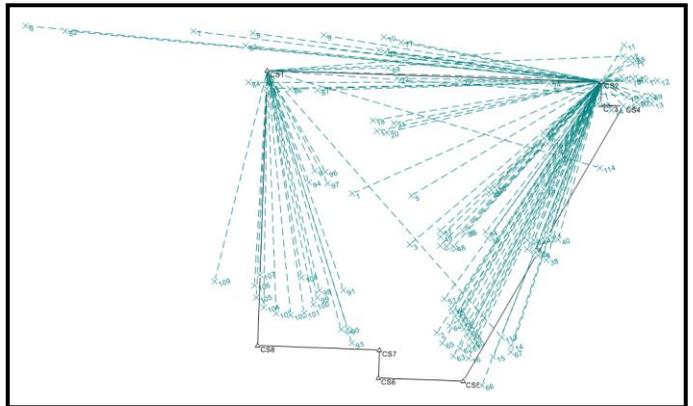
Overview

In this chapter, you'll learn how to use Point Codes to generate a site map. TPC uses Point Codes to sort your data into traverses, which it uses to draw the different features on the site map.

The example used in this chapter is a site survey of the Able & Swank Insurance office at the corner of Hwy 126 and Hwy 101 in Florence, Oregon. We will start with the property boundary and the imported field data.

▶ Premium and Professional Editions

Even though the Point Code tools are not found in the Personal Edition, you may still want to read through this chapter anyway. We will develop the survey using the point code tools and then talk about how we would do the survey in the Personal Edition.

▶ Getting Started

1. From the Tasks Manager choose **Sample Surveys**.
2. Double-click the **LEARN POINT CODES.TRV** file.
3. Choose **File | Save Survey As** then enter the name **Point Codes** and choose **Save**.
4. If prompted to replace the existing file, choose **Yes**.

What Are Point Codes

Point codes are number codes or abbreviations used to identify points in the survey. They are typically short to facilitate coding in the field and may or may not be descriptive of the points (i.e. 121=Oak Tree, 245=3 port fire hydrant, TOE=toe of slope, CLF=Chain Link Fence, etc.).

TPC uses the codes to sort points into traverses. All the points with the CLF code end up in the Chain Link Fence traverse, all the Oak Trees are in their own traverse, etc. The individual traverses convert the field data into a site map.

TPC assumes the point codes you use are stored in the point description. This means TPC can generate point codes from any data collector or total station that uses point descriptions. You can also include additional information about a point in its description because TPC is flexible in its determination of which part of the description the point code is. As an example, TPC knows that both point descriptions "PP" and "PP #1456" contain the code "PP", while the second includes additional information: the pole number #1456.

►Example Point Codes

The following are example point codes. TPC assumes the first word in the description is the code, additional description text is separated from the point code by a space and that if additional codes are included, they start with the -- delimiter.

Point	Description	
108	TFC2	- the first word is a code (TFC2)
109	CB --TFC2	- additional codes start with the code delimiter (--)
110	SW1	- SW1 is the first Side Walk
111	SW3	- SW3 is another Side Walk
112	DTT GRAVEL BOTTOM	- include a space and any additional text
113	DTT GRAVEL BOTTOM	
CS1	FND WOBBE 5/8 @ NE 7	

►Note: Include any descriptive information *after* the code, such as OAK 20" rather than 20" OAK. In the case of 20" OAK, TPC would read 20" as the code rather than OAK.

On some data collectors, these same codes might all start with the code delimiter as follows. Either way, TPC will read the codes just fine.

108	--TFC2
109	--CB --TFC2
110	--SW1
111	--SW1
112	--SW1

►Reusing Point Codes

The codes you use are either Predefined, De-facto standard or Ad-hoc:

➢ Predefined - The architect/engineer/agency wants the survey done with their codes, which then feed into other software. Many agencies and survey/engineering companies have well defined code lists, sometimes with multiple layers. The APWA (American Public Works Association) has a system like this. All TPC products work with pre-defined code tables.

➢ De-facto standard - Most surveying companies or crews adopt a typical set of codes that they start a job with. They may have 20-50 codes that show up on most jobs. They will probably need to add to it on a particular survey. TPC Desktop facilitates this by letting you open an existing point code table and add any additional codes to it.

➢ Ad-hoc - You make up the codes as you go. The only rule is to use the same code throughout that job (don't switch from TCF=Top Curb Face to TFC=Top Face Curb half way through). This is the most flexible coding method.

Point Codes

Using the Traverse View to Evaluate Field Data

1. In the Traverses Manager, double-click the **PROPERTY LINE - CS 28142** traverse to open the Traverse View.

This data was entered from record data (plat or deed). The **FND…** descriptions were added in the field to verify the monuments that were found. The point CS1 was recalled as the closing point, but we could have entered the record bearing/distance from CS8 to CS9 and checked the closure of the boundary.
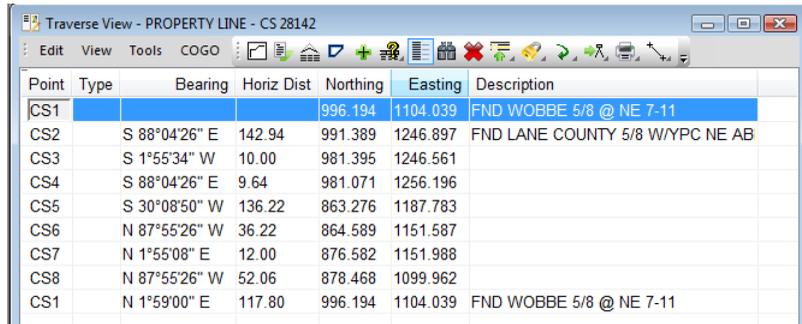
Point	Type	Bearing	Horiz Dist	Northing	Easting	Description
CS1				996.194	1104.039	FND WOBBE 5/8 @ NE 7-11
CS2		S 88°04'26" E	142.94	991.389	1246.897	FND LANE COUNTY 5/8 W/YPC NE AB
CS3		S 1°55'34" W	10.00	981.395	1246.561	
CS4		S 88°04'26" E	9.64	981.071	1256.196	
CS5		S 30°08'50" W	136.22	863.276	1187.783	
CS6		N 87°55'26" W	36.22	864.589	1151.587	
CS7		N 1°55'08" E	12.00	876.582	1151.988	
CS8		N 87°55'26" W	52.06	878.468	1099.962	
CS1		N 1°59'00" E	117.80	996.194	1104.039	FND WOBBE 5/8 @ NE 7-11

2. Left-click the '**X**' in the upper-right corner of the Traverse View to close it.

When you close a Traverse View, you do not affect any of the data in the traverse or survey, you merely close the window used to display the data. You can re-open the traverse any time by double-clicking it in the Traverses Manager.

3. From the Traverses Manager, double-click the **FIELD DATA FROM CS2** traverse.
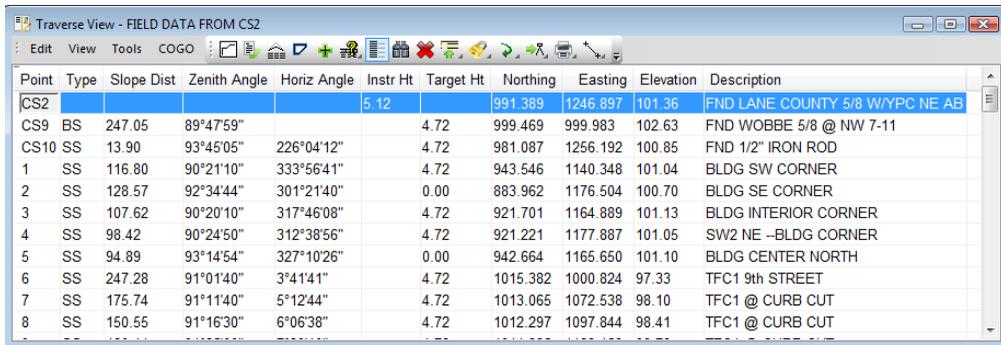
Point	Type	Slope Dist	Zenith Angle	Horiz Angle	Instr Ht	Target Ht	Northing	Easting	Elevation	Description
CS2					5.12		991.389	1246.897	101.36	FND LANE COUNTY 5/8 W/YPC NE AB
CS9	BS	247.05	89°47'59"			4.72	999.469	999.983	102.63	FND WOBBE 5/8 @ NW 7-11
CS10	SS	13.90	93°45'05"	226°04'12"		4.72	981.087	1256.192	100.85	FND 1/2" IRON ROD
1	SS	116.80	90°21'10"	333°56'41"		4.72	943.546	1140.348	101.04	BLDG SW CORNER
2	SS	128.57	92°34'44"	301°21'40"		0.00	883.962	1176.504	100.70	BLDG SE CORNER
3	SS	107.62	90°20'10"	317°46'08"		4.72	921.701	1164.889	101.13	BLDG INTERIOR CORNER
4	SS	98.42	90°24'50"	312°38'56"		4.72	921.221	1177.887	101.05	SW2 NE --BLDG CORNER
5	SS	94.89	93°14'54"	327°10'26"		0.00	942.664	1165.650	101.10	BLDG CENTER NORTH
6	SS	247.28	91°01'40"	3°41'41"		4.72	1015.382	1000.824	97.33	TFC1 9th STREET
7	SS	175.74	91°11'40"	5°12'44"		4.72	1013.065	1072.538	98.10	TFC1 @ CURB CUT
8	SS	150.55	91°16'30"	6°06'38"		4.72	1012.297	1097.844	98.41	TFC1 @ CURB CUT

We are using CS# for control points and 1, 2, 3… for side shots. We could have used 100, 101, 102… for the side shots also. Notice that each side shot has a description, and most of the descriptions contain a point code. We also tied CS10 as a side shot.

4. Use the scroll bar on the right side of the screen to browse through all the data in the traverse then close this Traverse View.

5. Left-click the '**X**' in the upper-right corner of the Traverse View to close it.

Using Drawing View to Evaluate the Field Data

TPC uses the Drawing View to 'draw the survey for you' which is indispensable when it comes to evaluating field data. We will look at the data several different ways to determine if we 'picked up' everything we need for the survey.

►Viewing tagged traverses

1. In the Traverses Manager choose **Tools | Select Traverses | Set All Tags**.
2. Left-click the Drawing View. If your Drawing View is not shown, choose **Window | Drawing View**.
3. In the Drawing View, choose **View | Zoom | Zoom Extents**.
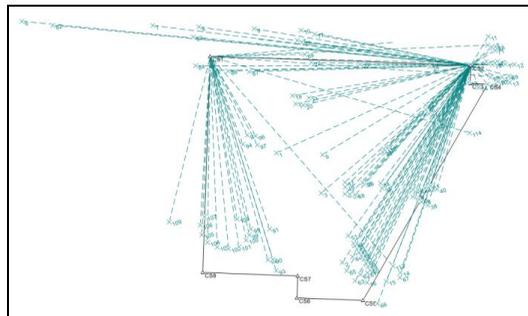
### ►Evaluate control points and side shots

The Drawing View now shows the property boundary in a solid black line and the side shot sprays in dashed teal lines.

This combination makes it easy to verify that the side shots are where you expect them to be. If you accidentally occupied the wrong point or sighted the wrong backsight the side shot sprays would not look right.

►Evaluate Coverage

In this next step, we want to see if we covered the area adequately. Did we pick up the shots we needed outside the property boundary, etc. This step is particularly helpful for Topo surveys where we want to extend past the property boundary to generate accurate contours.

1. Select both **FIELD DATA** traverses in the Traverses Manager.
2. Choose **Tools | Traverse Settings** to display the **Traverse Settings** dialog.
3. On the **Side Shots** tab, choose the settings shown here (set **Line** to **None** and **Point Font** and **Symbols** size to **0.04**) then choose **OK**.
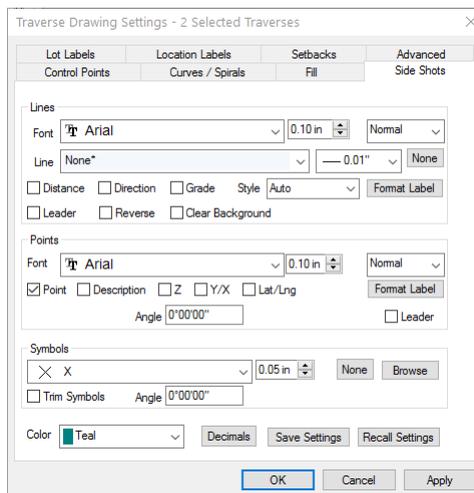
Point Codes

►Evaluate Individual Shots

Now that we are confident we have the coverage we want, we can check to make sure that we picked up specific features that are important to the survey. We do this by adding point descriptions to the Drawing View and zooming into the areas in question.

In this example we'll make sure we picked up the curb cuts near the NW property corner.

1. Select both **FIELD DATA** traverses in the Traverses Manager.
2. Choose **Tools | Traverse Settings** to display the **Traverse Settings** dialog.
3. Turn on **Description** as shown here and set the **Angle** to **40°** then choose **OK**.

TPC draws the point description below and to the right of the point symbol.

4. To zoom in on the NW property corner choose **View | Zoom | Zoom Window**, left-click above and to the left of the NW corner then left-click below and to the right of the corner.

You can see here that we did pick up the curb cuts.
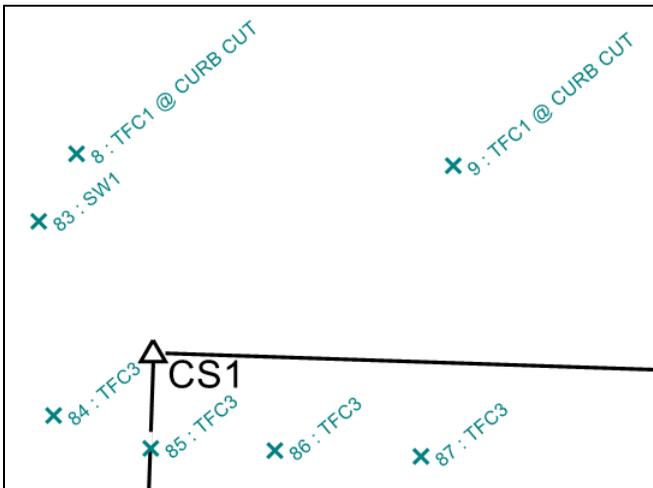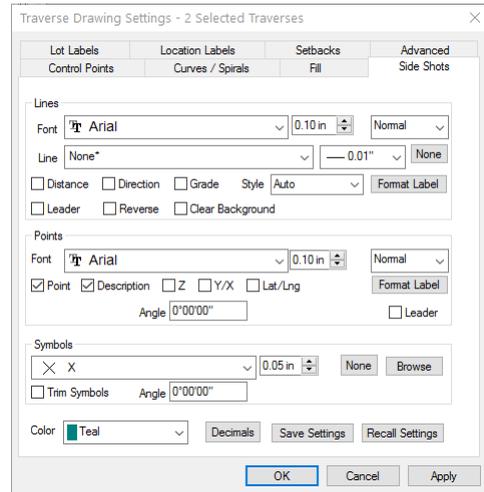
Using the Points Manager to Evaluate Field Codes

Because all of us are human, your field crew may sometimes make a mistake. A sidewalk point that should have been coded with SW1 might be coded with SU1 for example. When this happens, it is always better to catch it early, rather than later when you have based other things on the error. TPC makes it easy to spot the error before it morphs from a simple typo into something that has replicated itself throughout an entire project.

►Viewing Points and Descriptions

1. From the desktop menu choose **Manage | Points**.

The Points Manager contains every point that exists in your survey, even points that aren't used in any traverse. By default, the Points Manager displays the points in alpha-numeric sequence based on the point label.

Name	Description	Northing	Easting	Elevation
1	BLDG SW COR...	943.546	1140.348	101.04
1:1		956.545	1205.893	101.25
2	BLDG SE COR...	883.962	1176.504	100.70
3	BLDG INTERIO...	921.701	1164.889	101.13
4	SW2 NE --BLD...	921.221	1177.887	101.05
5	BLDG CENTER ...	942.664	1165.650	101.10
6	TFC1 9th STREET	1015.382	1000.824	97.33
7	TFC1 @ CURB ...	1013.065	1072.538	98.10
8	TFC1 @ CURB ...	1012.297	1097.844	98.41
9	TFC1 @ CURB ...	1011.335	1128.158	98.78
10	TFC1 @ CURB ...	1010.478	1153.884	99.06

►Sorting Points by Description

The great thing about the Points Manager is that it can also sort your points based on **Description, Northing, Easting** or **Elevation**.
The ability to sort the Points Manager based on the point descriptions makes it ideal for evaluating the crew's work before creating new traverses based on Point Codes.

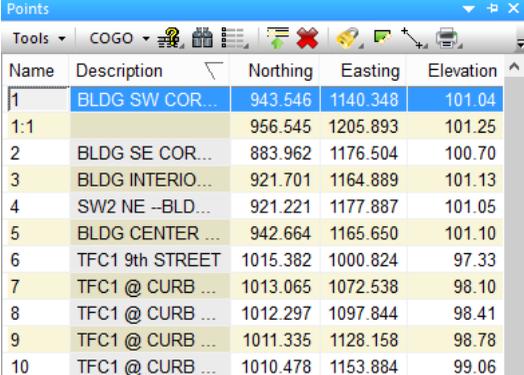1. Left-click on the column heading **Description** to sort least to greatest.

►Note: If you left-click the heading again, TPC reverses the order and left-clicking again cancels the sort.
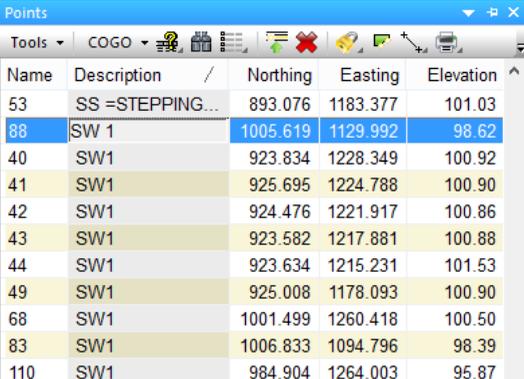
►Evaluating the Descriptions

As you scroll through the points in the Points Manager, you will be able to quickly spot any errors your crew may have made in the point descriptions. You might find **TFC1**, **TFC 1**, **TCF1**, **TFC1@**, **TFC19TH**, etc. You know that these should all be **TFC1** and it is a simple matter to edit the descriptions right here in the Points Manager so the points will all end up in the traverses they belong in.

Name	Description	Northing	Easting	Elevation
53	SS =STEPPING...	893.076	1183.377	101.03
88	SW 1	1005.619	1129.992	98.62
40	SW1	923.834	1228.349	100.92
41	SW1	925.695	1224.788	100.90
42	SW1	924.476	1221.917	100.86
43	SW1	923.582	1217.881	100.88
44	SW1	923.634	1215.231	101.53
49	SW1	925.008	1178.093	100.90
68	SW1	1001.499	1260.418	100.50
83	SW1	1006.833	1094.796	98.39
110	SW1	984.904	1264.003	95.87

1. Click in the **Description** field of point **88** and enter **SW1**.

You have just corrected the simple mistake that was made in the field.

Creating Point Codes

1. From the desktop menu choose **Manage | Point Codes**.
2. If your Point Codes Manager lists any codes, choose **Tools | Select Codes | Select All** then choose **Tools | Delete Selected Items**. When prompted to delete codes, choose **Yes**.

▶Listing all the point codes

1. Choose **Tools | Update Codes**.
2. Turn on **First word in point description is a code** and choose **OK**.

TPC will add each unique code to the Point Codes Manager. Here we have added the code descriptions and deleted any codes we didn't want.

▶Note: If your Point Codes Manager does not display the **Sort** column:

1. Choose **Tools | View | Format View** and add an **R** to the **Display Sequence**.
2. Choose **OK**.

▶Entering Code Descriptions

Code descriptions are not required, but are helpful. We are displaying a Point Codes Manager that has all of the descriptions entered.

What if you open this file a year from now and forget what the code WB means? Typing the description 'Wood Border' now will save you confusion later on.

Or what if you are using a stored set of default codes and added some new ones in the field? Because your stored codes have the description filled in, it is easy to see the new codes so you can get them set up and stored for the next time you need them.

In the next task you'll import a point code file that has descriptions like the ones shown here. Descriptions can also be used to replace the codes themselves when TPC sorts the survey points into traverses. After the sort, all the points with **MH** in the description can have **Manhole** in the description, making it easier for the architect or engineer who will be using the drawing to identify the points.

10
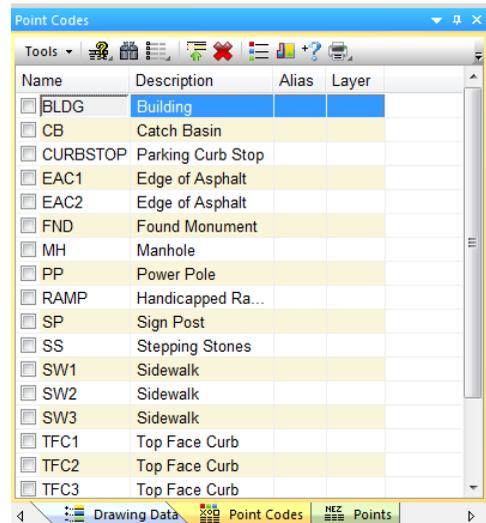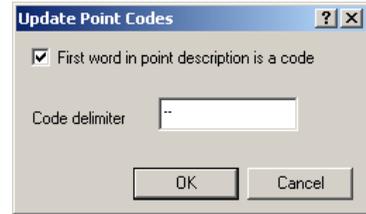
Managing Point Codes

►Saving the Point Codes

The point codes are saved automatically both when you close the Point Codes Manager and when you close the survey. Each time you open this survey, these point codes will be listed in the Point Codes Manager and the PCT (point codes) file will have the same file name as your survey job but with the .pct extension.

1. You can also save them manually by choosing **Tools | Export Codes**.

►Exporting the Point Codes

If you want to establish a point code table for use with all your jobs, you will need to export it.

1. Choose **Tools | Export Codes**.
2. Enter a new file name like **Standard Point Codes** and choose **Save**.

►Importing the Point Codes

When you need your standard point code table for a new job, you will need to import it. We have included a point code table called **LEARN POINT CODES.PCT** that has all of the descriptions and settings already applied.
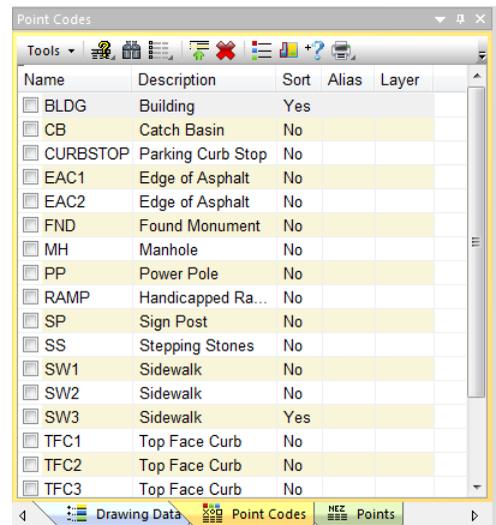
►Note: Importing a point code table does not replace or update any existing codes. It will only add codes that do not already exist.

1. Choose **Tools | Select Codes | Select All**.
2. Choose **Tools | Delete Selected Items**.
3. Choose **Yes**.
4. Choose **Tools | Import Codes**. You will see a list of all of the point code tables (.PCT) that are available in this folder.

Name	Description	Sort	Alias	Layer
BLDG	Building	Yes		
CB	Catch Basin	No		
CURBSTOP	Parking Curb Stop	No		
EAC1	Edge of Asphalt	No		
EAC2	Edge of Asphalt	No		
FND	Found Monument	No		
MH	Manhole	No		
PP	Power Pole	No		
RAMP	Handicapped Ra...	No		
SP	Sign Post	No		
SS	Stepping Stones	No		
SW1	Sidewalk	No		
SW2	Sidewalk	No		
SW3	Sidewalk	Yes		
TFC1	Top Face Curb	No		
TFC2	Top Face Curb	No		
TFC3	Top Face Curb	No		

Drawing Data | Point Codes | NEZ Points

5. Highlight **LEARN POINT CODES.PCT** and choose **Open**.

►Printing a Point Code List

Code Descriptions are also useful if you need to print a list of codes for the client.

1. Choose **Tools | Print | Print**

Assigning Traverse Settings to Point Codes

You can assign **Traverse Settings** to point codes. When TPC creates a traverse to hold the survey points with that code, the Traverse Settings are copied to the created traverse.

1. Right-click the **WM** code and choose **Modify Code | Traverse Settings**.

2. Select the **Code Settings** options you want then choose **OK**.

It is not necessary for you to change any of the code settings right now since we will be using the settings included in the LEARN POINT CODE.PCT file you imported.

The water meter code shown here is drawn in blue, using the **Water Meter** symbol with no lines connecting the water meters and no labels.
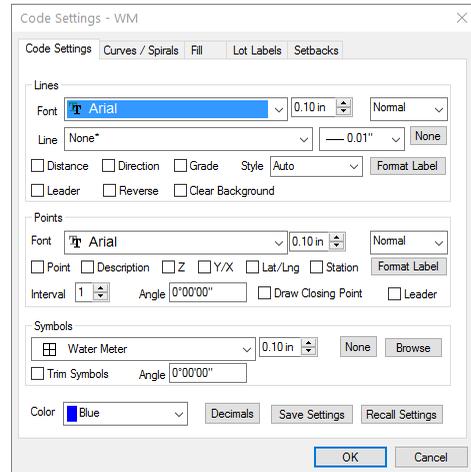
▶Hints

➢ If you don't want features like catch basins and water meters plotted with feature lines on the site map, set the line type to **None**.

➢ If you need a point symbol that isn't in the list, use the **Browse** button to select any symbol from the object library.

➢ If you have a lot of shots that are very close together, set the size in the **Points** and **Symbols** sections to a small number like 0.04 in.

➢ Consider using different colors to delineate utilities. For example, use Blue for anything water related, Red for anything electrical and Green for sewer related.

▶Copying Traverse Settings

You can also copy the Traverse Settings from one code to any number of other codes.

1. Highlight the code you want to copy from and choose **Tools | Modify Code | Copy Traverse Settings.**

2. Select any codes you want to copy the settings to and choose **Tools | Modify Code | Paste Traverse Settings**.

Sorting Points into Traverses

Now comes the fun part.

1. From the Point Codes Manager, choose **Tools | Sort Points Into Traverses by Code**.
2. Match the settings shown here and choose **OK**.

We just told TPC to create a separate traverse for each point code. We could have been more selective and only created traverses for the selected or tagged codes. The ability to select which codes get used allows you to use the point codes for just the features you want to include in your map.
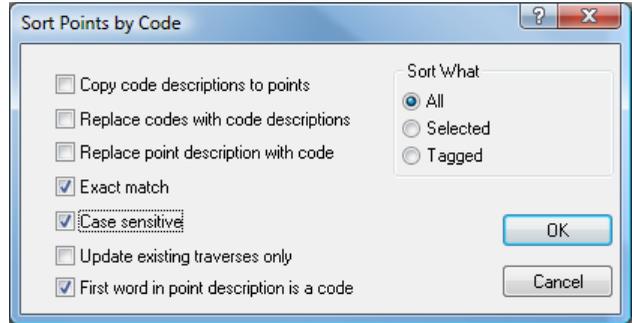
Now return to the Traverses Manager by choosing **Manage | Traverses**. Notice in the Traverses Manager shown here how TPC uses the CODE – DESCRIPTION to name each point code traverse it creates.

►Updating Traverses

So what if you go out and collect more points and want to add them to the traverses you created from point codes? TPC provides a great tool for this.

1. In the Point Codes Manager, Choose **Tools | Update Existing Point Code Traverses**.
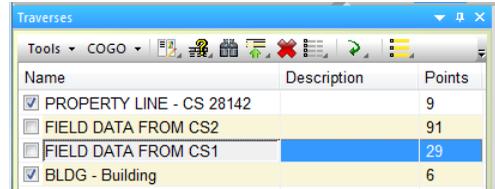
TPC can update the traverses this way because each traverse stores the point code that created it. If you add additional MH - Man Hole points, TPC looks for the traverse with the MH code and appends any MH survey points it doesn't find in the traverse.

Sort Points by Code

☐ Copy code descriptions to points
☐ Replace codes with code descriptions
☐ Replace point description with code
☑ Exact match
☑ Case sensitive
☐ Update existing traverses only
☑ First word in point description is a code

Sort What
◉ All
○ Selected
○ Tagged

[OK]
[Cancel]

Traverses

Tools ▾ COGO ▾

| Name	Description	Points
☑ PROPERTY LINE - CS 28142		9
☐ FIELD DATA FROM CS2		91
☐ FIELD DATA FROM CS1		29
☐ BLDG - Building		6
☐ CB - Catch Basin		2
☐ CURBSTOP - Parking Curb Stop		4
☐ EAC1 - Edge of Asphalt		15
☐ EAC2 - Edge of Asphalt		6
☐ FND - Found Monument		4
☐ MH - Manhole		1
☐ PP - Power Pole		3
☐ RAMP - Handicapped Ramp		3
☐ SP - Sign Post		6
☐ SS - Stepping Stones		8
☐ SW1 - Sidewalk		16
☐ SW2 - Sidewalk		4
☐ SW3 - Sidewalk		8
☐ TFC1 - Top Face Curb		11
☐ TFC2 - Top Face Curb		15
☐ TFC3 - Top Face Curb		4
☐ TRAFFIC - Traffic Pole		3
☐ WB - Wood Border		3
☐ WM - Water Meter		1

Viewing the Point Code Traverses

1. From the Traverses Manager, choose **Tools | Select Traverses | Set All Tags**.

2. Select the two Field Data traverses (**Field Data From CS2** and **Field Data From CS1**) and Untag them (uncheck their check boxes).

3. Click on the Drawing View to activate it and then choose **Tools | Drawing Settings**.

4. On the **Miscellaneous** tab, make sure **Over-ride Traverse Settings** is turned off and choose **OK**.

5. You may need to choose **View | Zoom | Zoom Extents** to see the entire survey.

6. Set the scale of the drawing to **40 FT/IN**

TPC will draw the site map for you with the Traverse Settings you chose in the Point Codes Manager (remember, these settings were copied to each traverse created from a point code and are now available because Over-ride Traverse Settings is not turned on in the Drawing Settings). Notice that the building is labeled as being "**BLDG – Building**" because the Traverse Settings are set to display the Lot Labels. If we rename the **BLDG – Building** traverse to **Office** and close the traverse by recalling its first point at the end, our map will display "**Office 1951 SqFt**."

We'll clean up some of the feature lines as we go, but you are starting to see the power of having TPC generate the map from your point codes especially if you standardize your Point Codes and Traverse Settings.
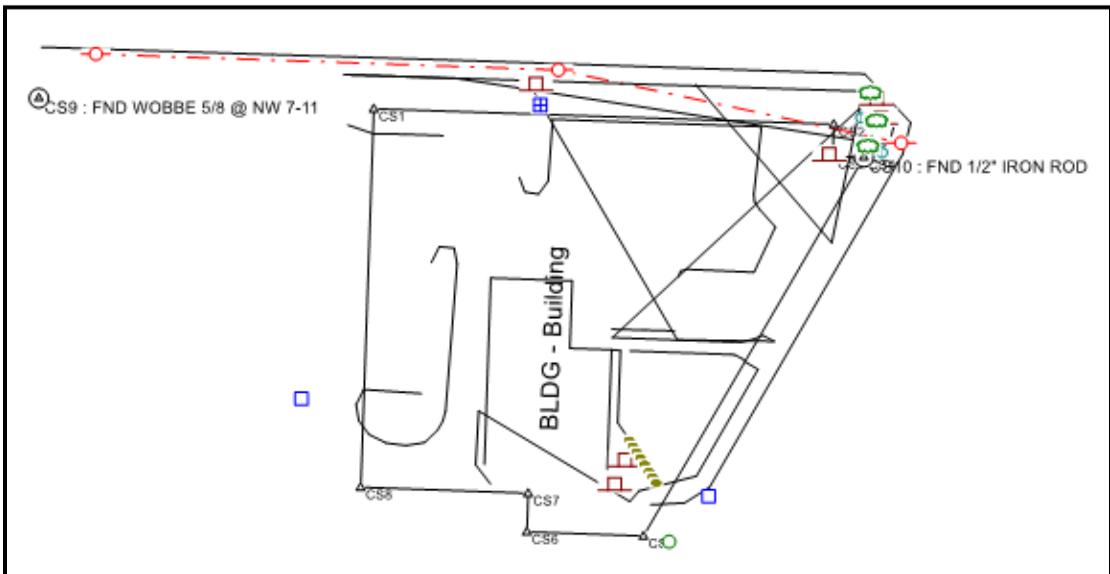
Sorting Points within Traverses

TPC can sort points within a traverse. Assume that you did not collect all of the EAC1 points in sequential order. This is the case if you tie a series of points like "Edge of Asphalt/Concrete" only to discover that you needed a few more shots in the middle.

TPC can sort the points as it creates each Point Code traverse (as you will see in subsequent pages) or you can sort the points manually after the traverses are created. That's what we'll do here.

▶Identifying traverses that need to be sorted

As you position the cursor over an object in Drawing View, the status bar tells you what object you are over and what traverse drew it. If you position the cursor over some of the lines that run across the map, you will see that the SW1 and EAC2 traverses need to be sorted.
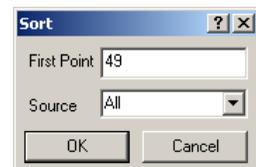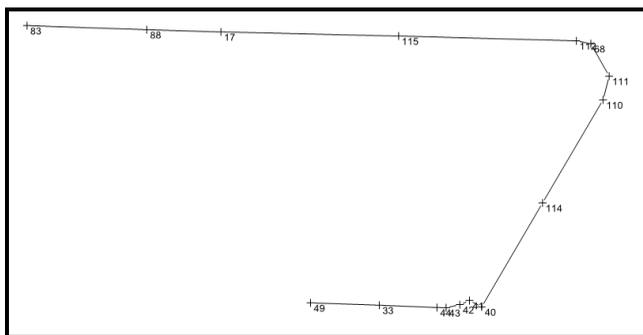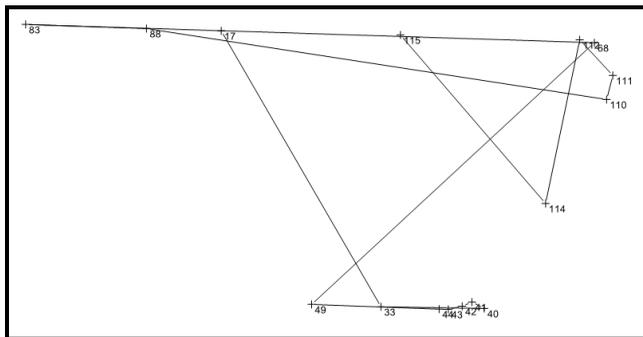
▶Sorting the SW1 traverse

1. Double-click the **SW1 - Sidewalk** traverse in the Traverses Manager to open the **New Traverse** dialog.

2. Select the **Boundary** format then choose **OK** to open the Traverse View.

Take a look at how TPC has drawn this traverse. The points with the **SW1** code were added to this traverse in the order of their point labels - not their physical position.

3. From the Traverse View choose **Tools | Sort Points**. Enter **49** for **First Point** and choose **OK**.

Generally, you want to start with the point that is the farthest away from the center of the figure. If your sort doesn't turn out right, just try a different **First Point**. In this case, point **49** gives us the right sort.

Most of the time, TPC will sort the points properly. If some part of the sort isn't right, you can always move points around in the traverse by deleting and recalling them into their proper sequence.
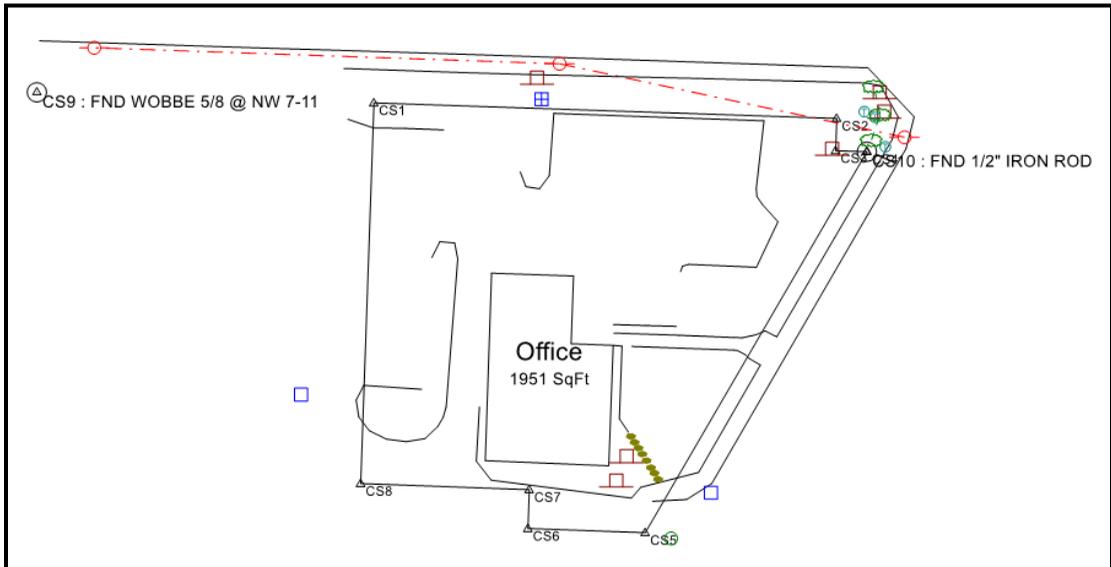
▶Sorting the other traverses

1. Sort the **EAC2 – Edge of Asphalt** traverse starting with point 91 (this point is in both the SW3 and EAC2 traverses because it has both codes).

2. Sort the **SW3 – Sidewalk** traverse starting with point 48.

3. Close any open Traverse Views and return to the Traverses Manager.

Drawing View redraws the survey so that it looks something like this. As you can see, TPC has drawn most of the map for us.

▶Note: We renamed the BLDG – Building traverse to **Office**. We also closed the traverse by recalling the initial traverse point at the end of the traverse.

Sorting Points by Position

TPC can automatically sort the traverse points based on nearest neighbor (Position) when you Sort Points by Code. In fact, we did that with the BLDG and SW3 codes.

### ►Can sorting the points by position help me?

The answer to the question is that it depends on how your data was shot in the field. Some surveyors always take their shots consecutively. In other words, they start at one end of a feature like a sidewalk and take all the shots in order. Other surveyors go out and shoot everything in sight without worrying what it is or what order they take the shots in. Sorting points by position can help in the latter case.

When we did the Abel & Swank job we are using here, we used two setups and shot everything we could without any consideration to order. Using the point codes to sort the points by position can really help with a file like this. We have two examples below that show what sorting the points by position can do.

►The Building Traverse With and Without Sorting by Position

The left image is of the **BLDG** – **Building** traverse that was created without sorting the points. They were added to the traverse in the sequence they were collected in and this was the result.

The right image is of the **BLDG** – **Building** traverse that was created when we sorted the points by position. The **Sort** option is turned on in our sample file and as you can see, all we need to do is close the traverse by recalling the first point as the last point.
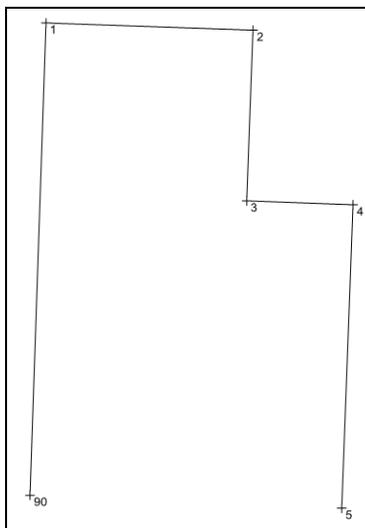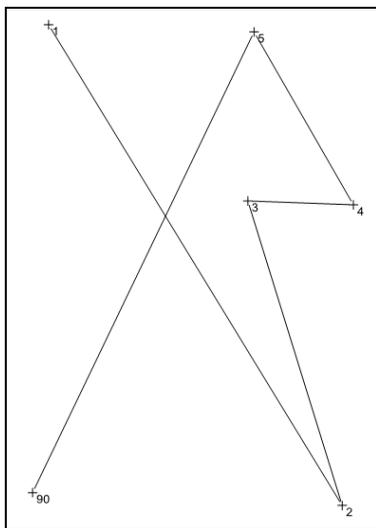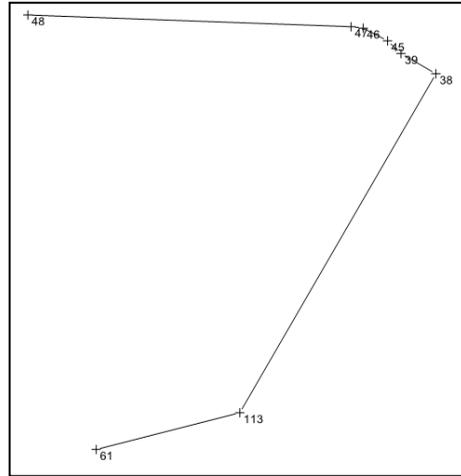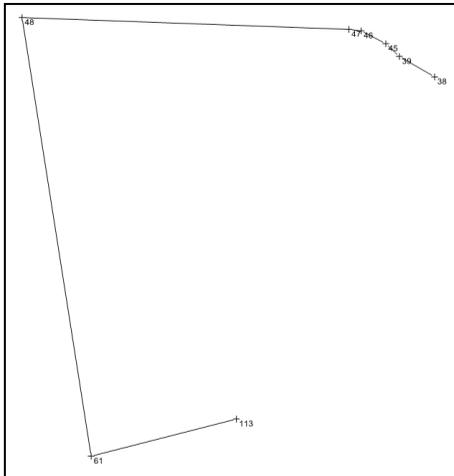
Point Codes

▶The Sidewalk 3 Traverse Without and With Sorting by Position

The left image is of the **SW3 -** traverse that was created without sorting points.

The right image is of the **SW3 – Sidewalk** traverse that was created by sorting points. Here you can see that TPC does the automatic sort by determining which point is the most outlying point and uses it as the starting point for the sort.

There is nothing else we need to do to this traverse as it is already sorted and has its Traverse settings.

We'll end this example here but you can continue on to connect the missing lines, add your own text and finish the map.

Creating "Point Code" Traverses Manually

If you have the Personal Edition of TPC Desktop, you don't have the Point Codes Manager and tools available to you. That doesn't mean that you can't use "Point Codes" to create your drawing, it just means that you will have to create each feature traverse manually. This topic shows you how.

1. Follow all the steps in this chapter up through Using the Points Manager to Evaluate Field Codes.

2. With the points sorted by Description in the Points Manager, select the BLDG points as shown here.

We could now choose **Tools** | **Add Selected Points to Traverse** to create a new traverse for the building. But there is a problem with that. Notice that we have selected 5 BLDG points. The problem is that we shot 6 BLDG points in the field and there is a 6th point in the file but we don't see it here. Let's try a different

method.

3. Go to the Traverses Manager and choose **Tools** | **Insert New Traverse** | **Append to End**.

4. Set the **New Traverse** dialog box settings as shown here and choose **OK**.

5. In the Office Traverse View, choose **Edit** | **Insert Existing Points…**

6. Make sure **Matching Points** is selected and choose **OK**.

7. In the Matching Points dialog box enter **BLDG** in the **Find what** field and select **Point Description**.

8. Choose **Find Next** and then **OK** when TPC tells you it found 6 points.
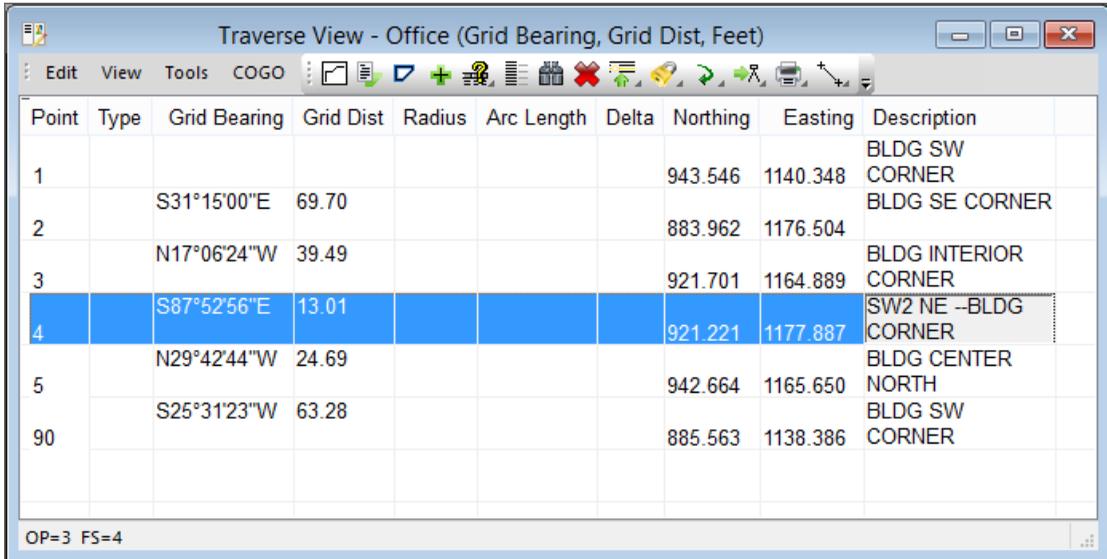
9. Close the Matching Points dialog by clicking the **X** in the upper right corner.

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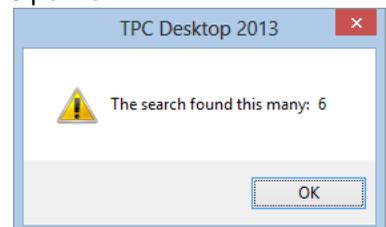
Finishing the Survey

You can now see why we didn't find the 6th point when we sorted the points by Description in the Points Manager. Point 4 is also an SW2 point and the field crew described it as an SW2 before describing it as a BLDG point.

Point	Type	Grid Bearing	Grid Dist	Radius	Arc Length	Delta	Northing	Easting	Description
1							943.546	1140.348	BLDG SW CORNER
2		S31°15'00"E	69.70				883.962	1176.504	BLDG SE CORNER
3		N17°06'24"W	39.49				921.701	1164.889	BLDG INTERIOR CORNER
4		S87°52'56"E	13.01				921.221	1177.887	SW2 NE --BLDG CORNER
5		N29°42'44"W	24.69				942.664	1165.650	BLDG CENTER NORTH
90		S25°31'23"W	63.28				885.563	1138.386	BLDG SW CORNER

Traverse View - Office (Grid Bearing, Grid Dist, Feet)
Edit   View   Tools   COGO
OP=3 FS=4

This is the real advantage of using the Insert Existing Points tool to create your traverses manually from "Point Codes" in the Description field.

We now need to sort and close the traverse.

1. Choose **Tools | Sort Points** with any point other than point 3 as the **First Point**.

▶Note: The Sort Points tool is not included in the Personal Edition of TPC Desktop. You will need to manually recall the points in the proper sequence in traverses that need to be sorted if you are using the Personal Edition.

▶Note: We will get a correct sort with any point except point 3 because the Sort Points tool uses a nearest neighbor sort to determine the point sequence.

2. Scroll to the bottom of the traverse and recall the starting point to close the figure.

3. Repeat the procedure for the rest of the codes in the file.

You will need to set the Traverse Settings appropriately for what each traverse will be drawing.

You can see that the Point Codes Manager and tools can automate the drawing process for you. But the Insert Existing Points tool combined with the Sort Points tool can make the process a lot easier than if you had to do it all manually.

Testing Your Skills

In this task, you'll test your skill at using point codes.

1. Open the **SKILL7.TRV** file in the Samples folder and save it as **TEST17.TRV**.
2. Use the Point Codes Manager (or the **Insert Existing Points** tool) to sort the following points into traverses (CP, DECK, DF, DW, DWN, H, HEATPUMP, LT, PP, SEPT, SHED, TOE, TOP, TREE, WELL).
3. Tag these traverses in the Traverses Manager, zoom extents in Drawing View then pick a drawing scale and position the survey on the page.
4. Clean up the map as needed. You can edit the traverse labels (i.e. change **H -** to **HOUSE**). You can also edit the **HOUSE** and **SHED** traverses and append the first traverse point to the end of the traverse to close the figure.
5. Optional: Add a legend to the drawing and identify the symbols and line types used.
6. Print the drawing.