



FIELD LINEWORK COMMANDS – SHORTCUTS

The following is the list of all available commands for survey linework:

<b>FULL COMMAND</b>	<b>Abbrev.</b>	<b>DESCRIPTION</b>
• <b>BEG &lt;figname&gt;</b>	<b>B</b>	Start a new figure.
• <b>C3</b>	<b>A</b>	Start a 3-Point Curve (Arc).
• <b>CLOSE</b>	<b>C</b>	Close and End a figure.
• <b>CLOSE BLD</b>	<b>CB</b>	Close and End a figure, adding final vertex.
• <b>CLOSE RECT &lt;offset&gt;</b>	<b>CR</b>	Close and End a figure, adding two vertices.
• <b>CONT &lt;figname&gt;</b>	<b>T</b>	Continue a figure.
• <b>END</b>	<b>E</b>	End a figure. Figure may be <b>CONTInued</b> later.
• <b>PC</b>	<b>P</b>	Create a tangent curve between next two shots.
• <b>RECALL &lt;ptnum&gt;</b>	<b>R</b>	Recall a previous point
• <b>START &lt;figname&gt;</b>	<b>S</b>	Extend the start of a figure.

There are also a couple of additional shortcut commands:

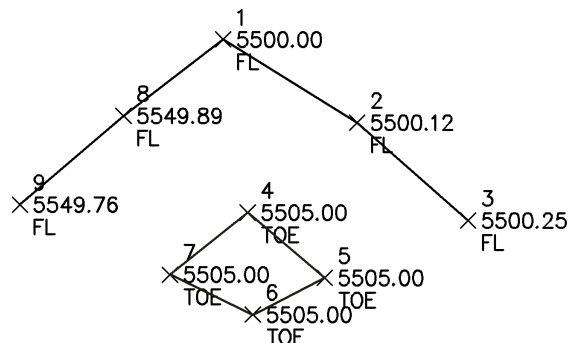
- **BA** Begin a new figure, and start drawing an arc. Basically the same thing as using the **BEG** command, followed immediately by the **C3** command – the first point in the Figure is also the first point in the arc. Should be followed by two more shots to finish the arc.
- **BR <ptnum>** Recall a previous point, and begins a new figure at that point. Basically, this command adds a **BEGIN** command, and then a **RECALL** command before the current point. The resulting figure starts at the recalled point, and includes the current point.
- **RE <ptnum>** Recall a previous point, and end the current figure at that point. Basically, this command adds a **RECALL** command and an **END** command after the current point. The resulting figure includes the current point, then ends at the recalled point.
- **TA** Similar to the **BA** command, except continues an existing figure. Should be immediately followed by two more shots to finish the arc.
- **X <ptnum>** Chain arc segments. Basically the same thing as starting the **C3** command and recalling the previous shot as the first shot for the next arc segment. Used to chain together multiple C3 commands.

Here is an example of some of the commands. In this example, Point code 2 is FL, Point code 3 is Toe of Slope. Note the placement of the **C (CLOSE)** command:

```

1,1000,1000,5500,B 2
2,986.47,1021.74,5500.12,2
3,970.58,1039.79,5500.25,2
4,971.88,1003.99,5505,B 3
5,961.27,1016.49,5505,3
6,955.3,1004.82,5505,3
7,961.81,991.36,5505,C 3
8,987.58,983.81,5549.89,S 2
9,973.18,966.95,5549.76,2

```



Since the **C** command is included in the description for Point 7, Point 7 is the last point in the figure. Point 8 is a FL point, and uses the **S (START)** command, which causes linework to be added to the beginning of the last FL figure.

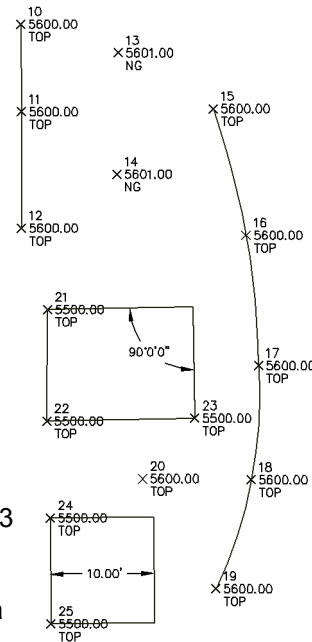


Here's another example, showing a few more commands

```

10, 991.8787, 988.2500, 5600.0000, B 5
11, 983.4172, 988.3178, 5600.0000, 5
12, 972.1804, 988.3178, 5600.0000, E 5
13, 989.1033, 997.6621, 5601.0000, 4
14, 977.3926, 997.5267, 5601.0000, 4
15, 983.7152, 1006.8229, 5600.0000, BA 5
16, 971.4894, 1010.0036, 5600.0000, 5
17, 958.9118, 1011.1824, 5600.0000, 5
18, 947.8871, 1010.4813, 5600.0000, X 5
19, 937.3770, 1007.0793, 5600.0000, E 5
20, 948.1000, 5600.0000, 5
21, 964.3281, 990.8231, 5500.0000, B 5
22, 953.5651, 990.7554, 5500.0000, 5
23, 953.8359, 1005.0428, 5500.0000, CB 5
24, 944.2054, 991.0943, 5500.0000, B 5
25, 933.9839, 991.1620, 5500.0000, CR -10 5

```



The first figure is drawn between points 10 and 12; notice the placement of the **B (BEG)** and **E (END)** commands. Then Points 13 and 14 are not part of a figure.

The next figure is started with the **BA** command. This is basically a shortcut command that functions like the **BEG** and **C3** commands combined – it **BEG**ins a new figure, and starts the **C3** command. Since 5 is the point code for a Top, having “BA 5” as the description of Point 15 starts a figure named “TOP”. Since it also starts the **C3** command, points 15, 16, and 17 are used to define an arc. The “X 5” command for Point 18 starts another **C3** command, except it also automatically recalls the last point as the first point in the new curve. In this example, it means that the previous point – in this case, Point 17 – is the first point of the new arc, and points 18 and 19 are the next three points. See below for another example of the **X** shortcut command. There is an **E (END)** command in Point 19, so that means Point 20 is not part of a figure.

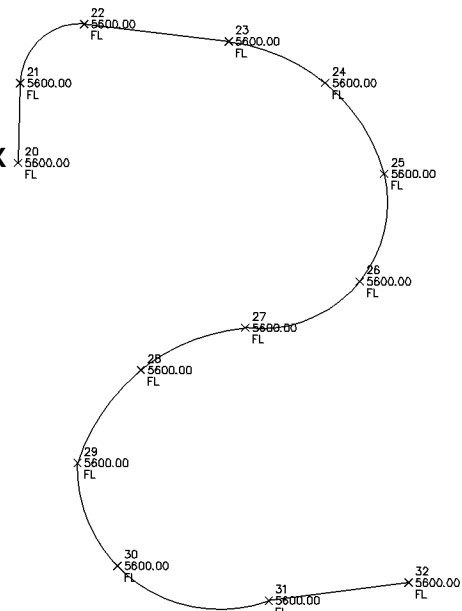
Point 21 starts a new figure that is closed with the **CB (CLOSE BLD)** command in Point 23. This command closes the linework by adding a right angle. Point 24 starts a new figure that is closed with the **CR (CLOSE RECT)** command in Point 25. With this command, the number right after the command is the offset distance. The final number is the Point Code for Point 25.

The example on the right show another illustration of the **X** command, as well as an illustration of the **A (Arc, a shortcut for the C3) command, and the P (PC) command.**

```

20, 953.3037, 991.7420, 5600.0000, B 2
21, 961.8053, 991.9601, 5600.0000, P 2
22, 968.1270, 998.7925, 5600.0000, 2
23, 966.2723, 1014.2018, 5600.0000, A 2
24, 961.8399, 1024.5583, 5600.0000, 2
25, 952.1411, 1030.8467, 5600.0000, 2
26, 940.6603, 1028.2300, 5600.0000, X 2
27, 935.7193, 1016.0189, 5600.0000, 2
28, 931.2141, 1004.8254, 5600.0000, X 2
29, 921.3084, 998.0608, 5600.0000, 2
30, 910.3362, 1002.3492, 5600.0000, X 2
31, 906.6304, 1018.4854, 5600.0000, 2
32, 908.5291, 1033.4213, 5600.0000, 2

```





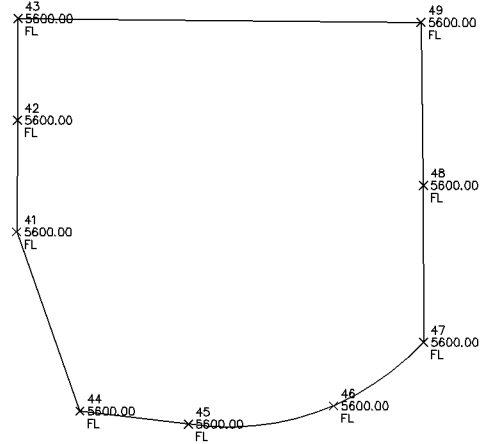
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In this example, note how the **C (CLOSE)** command works when used in conjunction with the **S (START)** command. It also illustrates a way to “cheat” if you forget to start an arc. Normally, to get a figure like the one below, Shot 45 would contain a description like “A 2” to start an arc. The example below uses an “X 2” command at Shot 46 to get the same basic result:

```

41,951.0074,909.2798,5600.0000,B 2
42,961.4490,909.3278,5600.0000,2
43,970.9325,909.3757,5600.0000,2
44,934.2786,915.1607,5600.0000,S 2
45,933.0686,925.2730,5600.0000,2
46,934.7704,938.8412,5600.0000,X 2
47,940.7096,947.2258,5600.0000,2
48,955.3717,947.1880,5600.0000,2
49,970.5752,946.9853,5600.0000,C 2

```



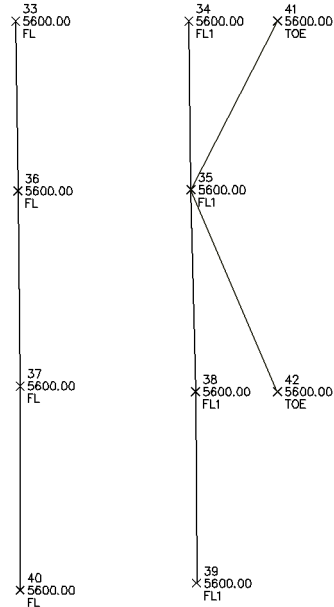
To run multiple strings at one time, use String Numbers. String Numbers are separated from the Point Code by a decimal, as in the example below. This example also illustrates the use of the **T (CONT)** and **R (RECALL)** commands:

```

33,974.0795,925.4847,5600.0000,B 2
34,974.0795,941.6928,5600.0000,B 2.1
35,958.3056,941.9075,5600.0000,2.1
36,958.1983,925.6993,5600.0000,T 2
37,939.9563,925.9140,5600.0000,2
38,939.4198,942.3368,5600.0000,T 2.1
39,921.4997,942.4442,5600.0000,2.1
40,920.8559,925.9140,5600.0000,T 2
41,974.0795,950,5600.0000,B 3
42,939.4198,950,5600.0000,R 35 3

```

Notice that in Point 42, the Point Code (“3”) is the description for Point 42. The “R 35” part says to “Recall Point 35”, and connect to that point BEFORE connecting to Point 42.





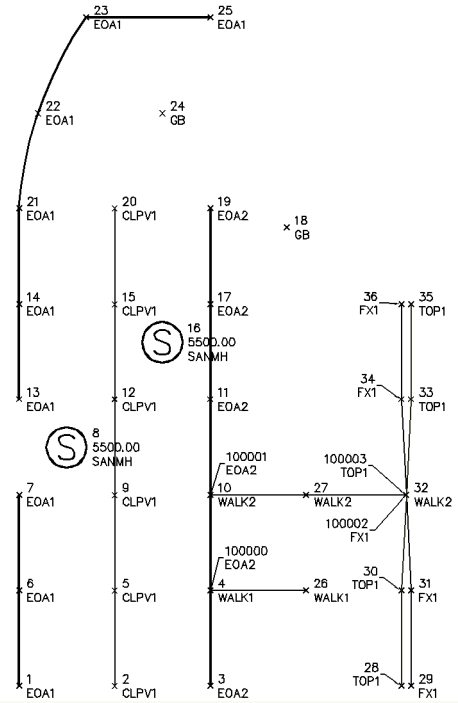
**AUTOSTRINGS**

When using strings to connect points, it is not necessary to use any **BEG**, **CONT**, or **END** commands. These commands will still work, and can be used explicitly if desired, but if the command is omitted, the commands will be automatically inserted as needed. When collecting points in this manner, it is also possible to connect multiple strings in the same point, by tying multiple strings together with another decimal point, as illustrated in the example below:

```

1,1000,1000,5500,21.1
2,1000,1010,5500,1.1
3,1000,1020,5500,21.2
4,1010,1020,5500,21.2.26.1
5,1010,1010,5500,1.1
6,1010,1000,5500,21.1
7,1020,1000,5500,21.1
8,1025,1005,5500,223
9,1020,1010,5500,1.1
10,1020,1020,5500,21.2.26.2
11,1030,1020,5500,21.2
12,1030,1010,5500,1.1
13,1030,1000,5500,B 21.1
14,1040,1000,5500,21.1
15,1040,1010,5500,1.1
16,1036,1015,5500,223
17,1040,1020,5500,21.2
18,1048,1028,5500,6
19,1050,1020,5500,21.2
20,1050,1010,5500,1.1
21,1050,1000,5500,A 21.1
22,1060,1002,5500,21.1
23,1070,1007,5500,21.1
24,1060,1015,5500,6
25,1070,1020,5500,21.1
26,1010,1030,5500,26.1
27,1020,1030,5500,26.2
28,1000,1040,5500,5.1
29,1000,1041,5500,98.1
30,1010,1040,5500,5.1
31,1010,1041,5500,98.1
32,1020,1040.5,5500,98.1.5.1.26.2
33,1030,1041,5500,5.1
34,1030,1040,5500,98.1
35,1040,1041,5500,5.1
36,1040,1040,5500,98.1

```



1=CLPV, 5=TOP, 6=GB, 21=EOA, 26=WALK, 98=FX (FENCE), 223 SAN MH

Notice how all 21.1 codes get connected as an EOA1 figure, all 1.1 codes get connected as a CLPV1 figure, etc. However, explicit commands can also be used. For example, Point 13 has a **B (BEG)** command, so a new figure with name EOA1 is started at Point 13. Points with 223 codes (sanitary sewer manholes) have no string identifier, so no figures are drawn connecting the manholes. If we had used 223.1 codes instead, a sewer line would be drawn between the manholes. Point 21 has an **A (C3)** command. Note that the next two shots after an **A** command **must** complete the arc, otherwise things will get confused.

Notice how the code for Point 4 has the codes for 21.2 (EOA2) and 26.1 (WALK1) strung together. In order to dump this into Civil-3D, a new point is created for each additional point code, and each point gets one of the point codes. For Point 4, two points are actually created; one point gets the description EOA2, and the other gets the description WALK1. By default, the point numbers for the additional points start at 100,000. You can string an arbitrary number of descriptions together in this manner. The last code in the list gets the store point number for the point. In this case, the description for Point 4 is WALK1, and a new point – Point 100000 – is created and given the EOA2 description. Point 32 illustrates an example where three different strings come together.