

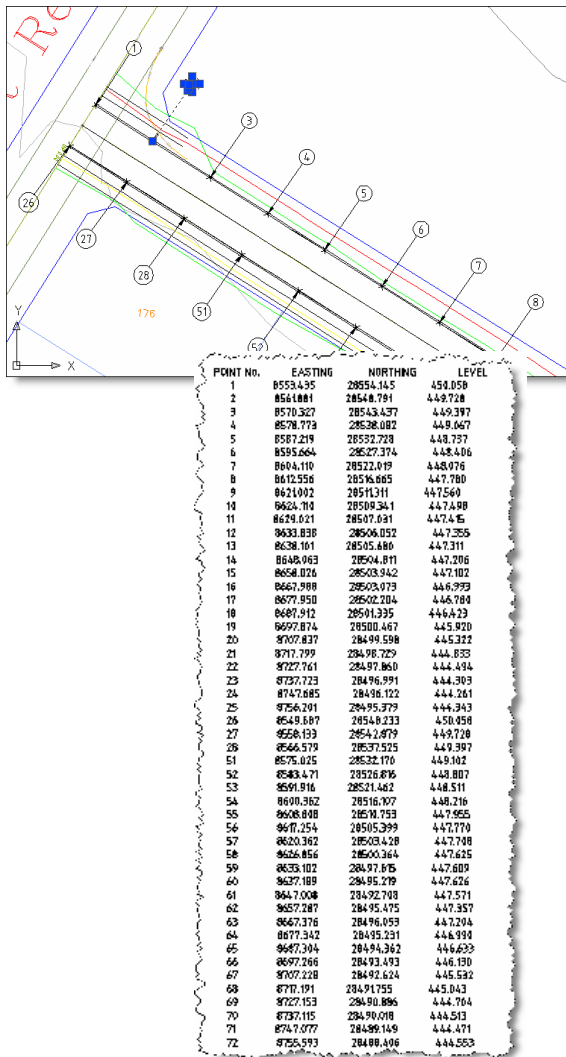
ARD SETOUT – CREATING CIVIL 3D POINTS AND A POINTS TABLE

It's fair to say that ARD, by default, doesn't have the most glamorous display options for creating a point setout along a Road.

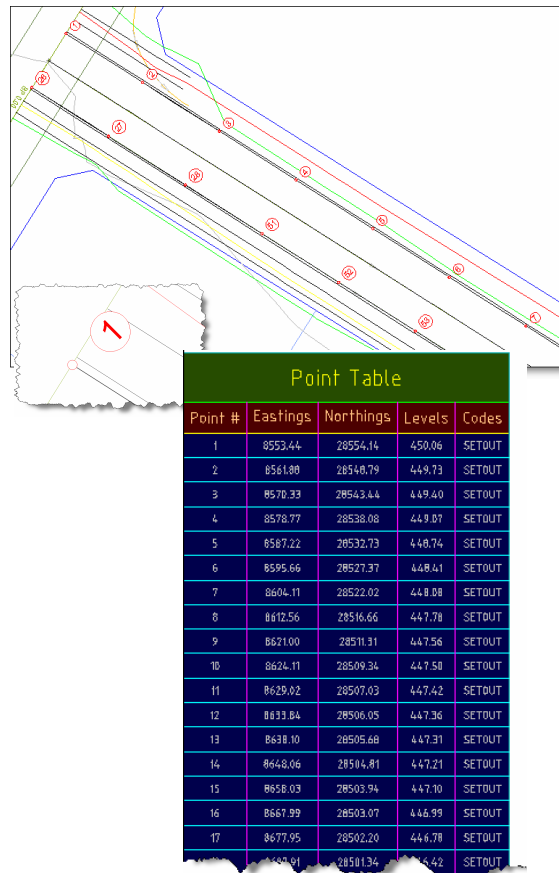
Designers can, with a little extra effort, make good use of Civil 3D to generate a setout via the Civil 3D Point creation tools, including a great looking, fully dynamic points table.

Compare these outputs:

Advanced Road Design Only



ARD with Civil 3D Point Output



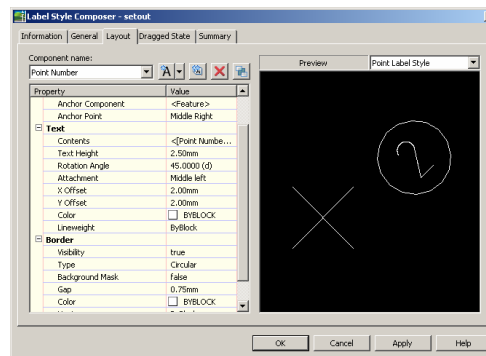
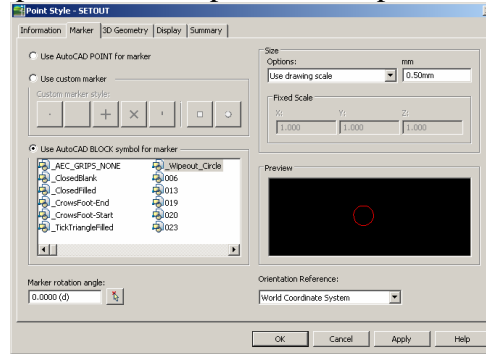
Before going through the process, users are encouraged to set up Civil 3D to receive the output points and immediately represent them to the user's requirements.

Drawing Template Setup

The drawing template (ideally) should be set up so that when points are imported they:

1. Use an appropriate point style
 - i. You can design your own point styles (markers)

2. Use an appropriate label style
 - i. You can design your own point label styles



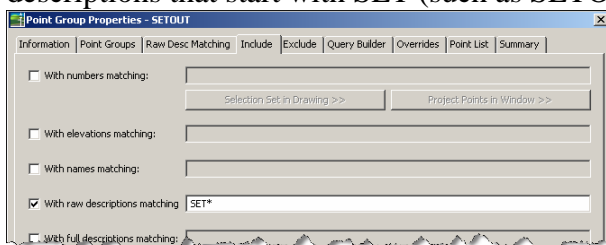
3. Go onto the right layer

The **Description Key Set** co-ordinates the assignment of a Point Style, Label Style and Layer at the time of importing points by matching up to the Point Description. In the following example, the drawing Description Key Set is looking for any points with descriptions starting with SET (such as SETOUT).

Code	Point Style	Point Label Style	Format	Layer	Scale	Parameter	Filter
PPT	✓ PPT	✓ _Au Level and C	PP TRAN	✓ V-NODE-SERVICES	✓	Parameter 1	1.1
PSM*	✓ PSM	✓ _Au Level and C	STN STPI	✓ V-NODE-SURVEY	✓	Parameter 1	1.1
RW*	✓ Standard	✓ _Au Level and C	RET WAL	✓ V-NODE-TOPO	✓	Parameter 1	1.1
SCREW*	✓ Standard	✓ _Au Level and C	SCREW	✓ V-NODE-SURVEY	✓	Parameter 1	1.1
SET*	✓ SETOUT	✓ setout	SETOUT	✓ V-NODE-LABEL-ELEV	+	Parameter 1	1.1
SHED*	✓ Standard	✓ _Au Level and C	SHED	✓ V-NODE-STRUCTURES	✓	Parameter 1	1.1
SMH*	✓ SMH	✓ _Au Level and C	SMH	✓ V-NODE-SERVICES	✓	Parameter 1	1.1
SN*	✓ SIGN	✓ _Au Level and C	SIGN	✓ V-NODE-STRUCTURES	✓	Parameter 1	1.1
STAY	✓ Standard	✓ _Au Level and C	STAY WT	✓ V-NODE-SERVICES	✓	Parameter 1	1.1

Point Groups

Point groups help you to organize your point data, and can be used to create Points Tables. In this example a point group has been created specifically to Include points with descriptions that start with SET (such as SETOUT).



Setout Process

ARD Setout

Step 1. Design your road (or island) as desired

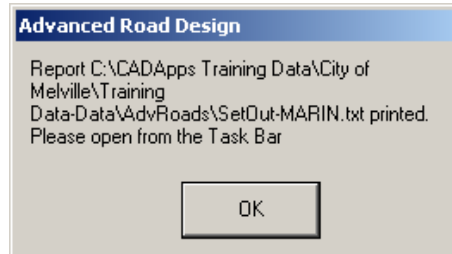
Step 2. Start the command [Roads]-[Setout]. Select the appropriate method (Selected Sections or All Data). The Setout form will open:

The screenshot shows the 'Set Out for MARIN' dialog box. Key settings include: Left Set out Point: LEB, Right Set out Point: REB, Additional Offset: 0.000, Height Adjustment: 0.000, Offset to Text: 10. Spacing: Chainages (selected), Fractional Spacing: 0.250, Equal Spacing: 2.500. Font: ISOCP.shx, Text Size: 2.500, Arrow Size: 1.0, Cross Size: 1.0, RunOut Text Size: 1.5, TP Chain Offset (mm): 15.0, Maximum Distance: 100.000. SetOut Method: Points (selected), Chainage & Offset. Initial Point No: 1. Checkboxes: Draw Offset, Show PN, Circle Number, Show Chainages, Show Labels, Save to file, Details in file, 3D Polyline Setout, (CSV File output) are all checked. The 'Create Setout' button is highlighted with a mouse cursor.

Step 3. Don't worry about generating information inside the drawing – take the options to **Save to File**, put the **Details in File** and make a **CSV file output**. The last one makes a comma delimited file, which is much easier to push into Excel for editing

Excel – Editing the Output

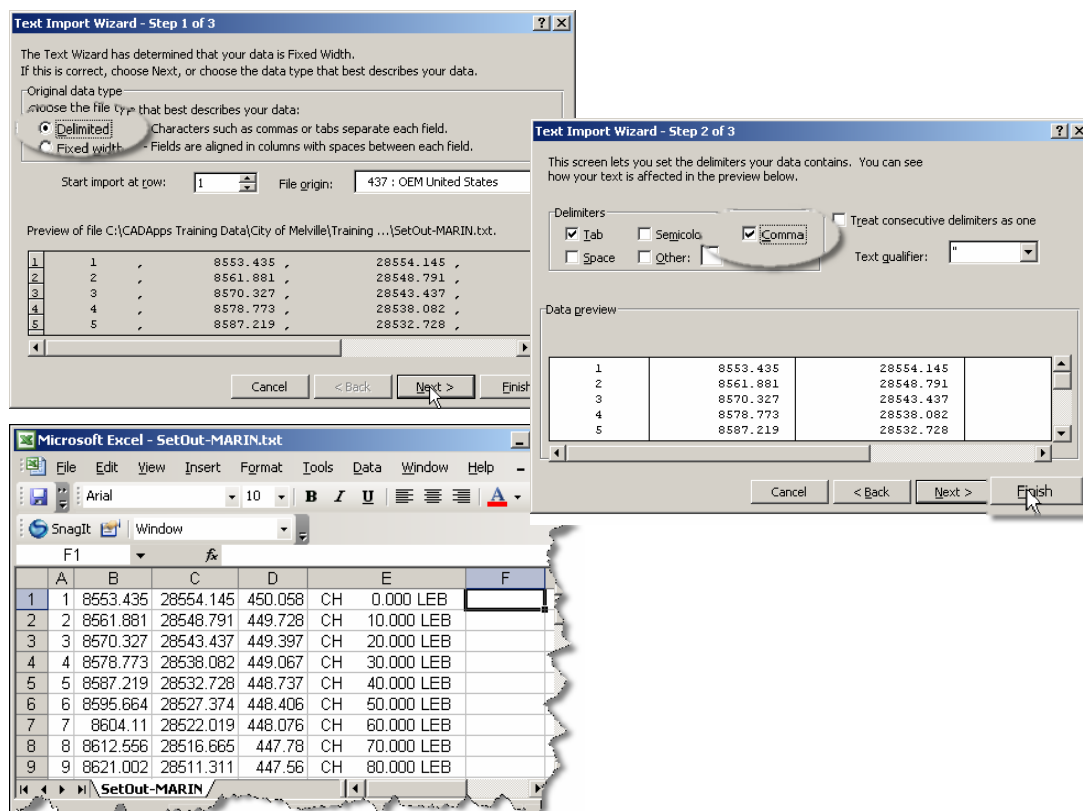
Step 4. Click on Create Setout. A message will display to confirm the file save location – this is by default in the same location where the local project data is stored:



Step 5. Start Microsoft Excel (as an option) to edit the file

Step 6. Click on [File]-[Open] and locate the file (you may need to change the Files of Type to find All Files

Step 7. Excel needs you to tell it how to arrange the data into columns. Follow the steps:



Step 8. Edit the information inside Excel as desired – it is usual to adjust the last column of data that describes the point description.

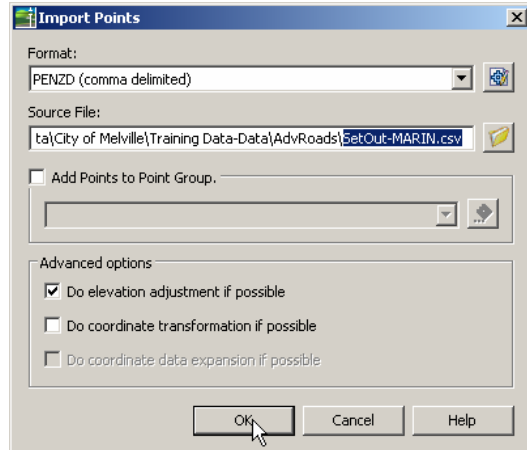
Step 9. After editing the file, click on [File]-[Save As]. Change the **Files of Type** to CSV (Comma Delimited). Save the file where desired and close Excel

The format of the file is P,E,N,Z,D (comma delimited)

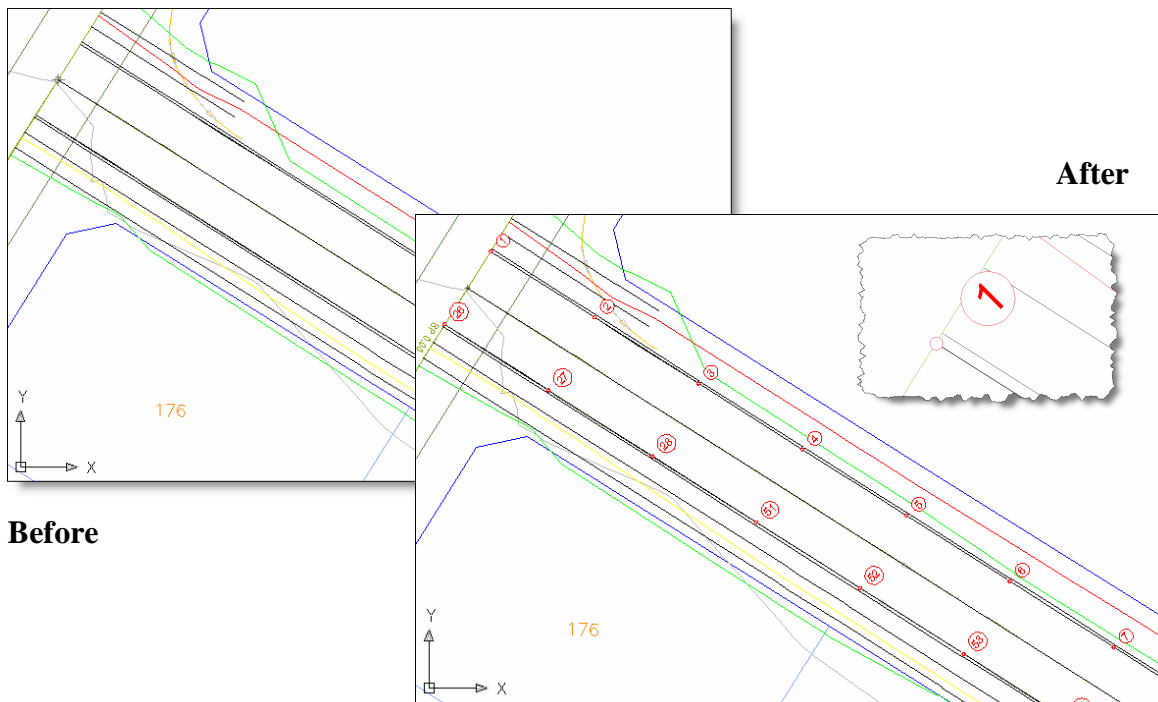
Civil 3D Points Creation and Points Table

Step 10. Back to Civil 3D. Go to [Points]-[Import/Export Points]-[Import Points]

Step 11. Set the format to PENZD (Comma Delimited) and click on the folder icon to locate and Open your .csv file:



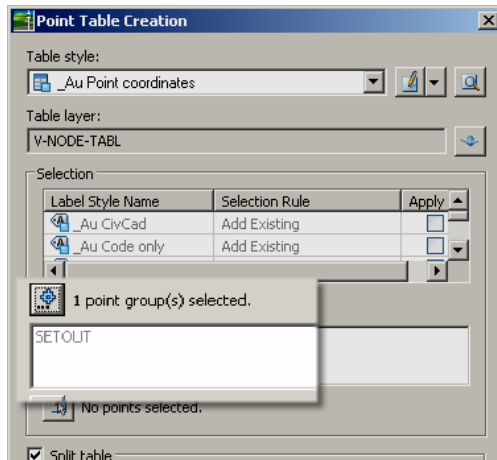
Step 12. Click on OK to create your Civil 3D Points:



Step 13. Click on a point (or point collection) and use the AutoCAD Properties toolbar to change Point Styles and/or Label Styles to suit.

Step 14. From the list of Point Groups, right click on the word Point Groups and select **Update**. All the point groups will update to include the newly imported points.

Step 15. Go to [Points]-[Add Tables] to create a Points Table:



Step 16. Select the points required (normally by Point Group) and click OK

Step 17. Agree to a Dynamic table and click to create it in the drawing:

Point Table				
Point #	Eastings	Northings	Levels	Codes
1	8553.44	28554.14	450.06	SETOUT
2	8561.88	28548.79	449.73	SETOUT
3	8570.33	28543.44	449.40	SETOUT
4	8578.77	28538.08	449.07	SETOUT
5	8587.22	28532.73	448.74	SETOUT
6	8595.66	28527.37	448.41	SETOUT
7	8604.11	28522.02	448.08	SETOUT
8	8612.56	28516.66	447.78	SETOUT
9	8621.00	28511.31	447.56	SETOUT
10	8624.11	28509.34	447.50	SETOUT
11	8629.02	28507.03	447.42	SETOUT
12	8633.84	28506.05	447.36	SETOUT
13	8638.10	28505.68	447.31	SETOUT
14	8648.06	28504.81	447.21	SETOUT
15	8658.03	28503.94	447.10	SETOUT
16	8667.99	28503.07	446.99	SETOUT
17	8677.95	28502.20	446.78	SETOUT
18	8687.91	28501.34	446.42	SETOUT
19	8697.87	28498.73	444.83	SETOUT
20	8707.83	28497.86	444.49	SETOUT
21	8717.80	28498.73	444.83	SETOUT
22	8727.76	28497.86	444.49	SETOUT
23	8737.72	28496.99	444.30	SETOUT
24	8747.68	28496.12	444.26	SETOUT
25	8756.20	28495.38	444.34	SETOUT
26	8549.69	28548.23	450.06	SETOUT
27	8558.13	28542.88	449.73	SETOUT
28	8566.58	28537.52	449.40	SETOUT
29	8575.02	28532.17	449.10	SETOUT
30	8583.47	28526.82	448.81	SETOUT
31	8591.92	28521.46	448.51	SETOUT
32	8600.36	28516.11	448.22	SETOUT
33	8608.81	28510.75	447.96	SETOUT
34	8617.25	28505.40	447.77	SETOUT
35	8620.36	28503.43	447.71	SETOUT
36	8626.86	28500.36	447.62	SETOUT
37	8633.10	28497.62	447.61	SETOUT
38	8640.06	28495.22	447.43	SETOUT

Civil 3D Table Styles control this display. The table is dynamically linked to the Civil 3D points in the drawing.

Summary

It is a little more effort, but the display output is significantly improved, with automatic rescaling of the point labels and far superior grip editing capability.