

Drawing Layouts – Paper space & Model Space

Users of Bricscad will have seen the tabs at the bottom left of the drawings area labelled: “Model”, “Layout1”, “Layout2” but may not know how to use them or what they are for.

They are used to separate your TM real world drawing from the title block you use to surround it when plotted on a sheet of paper or PDF file. They also allow you to vary the scale at which the scheme is plotted, so showing either a larger area at less detail or a more “zoomed-in” view. Here is a summary of the two types of tabs and how they work.

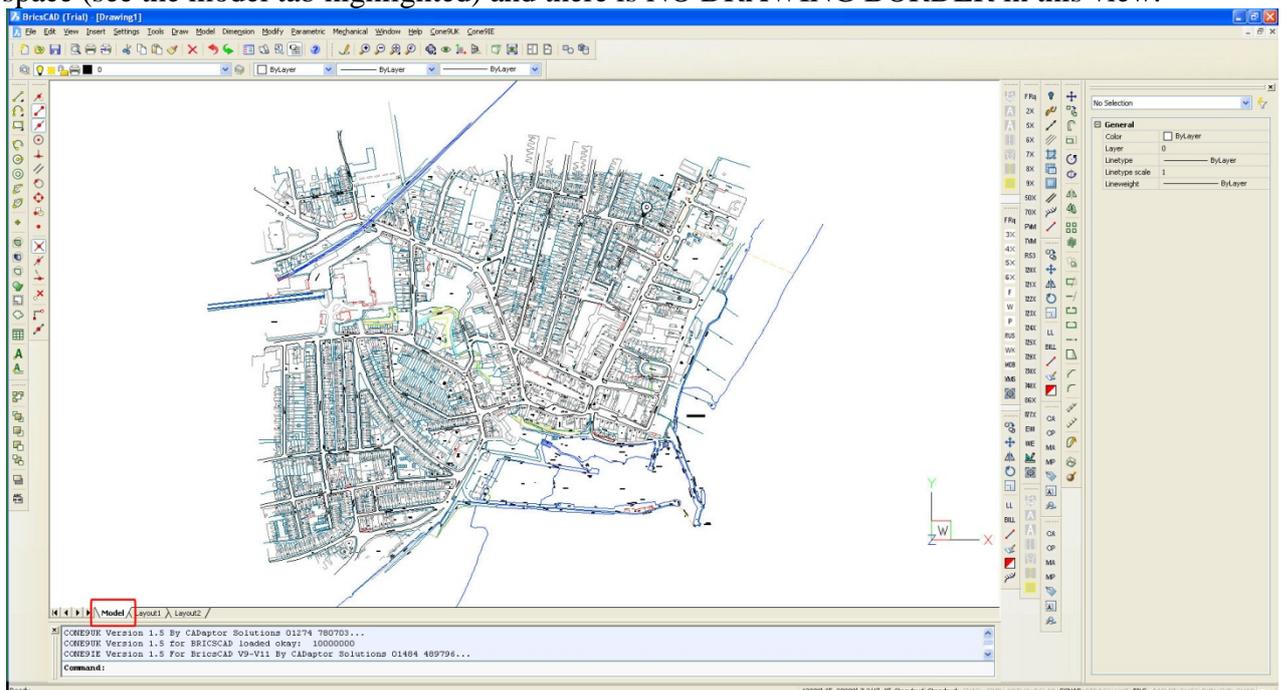
Model Space - the first tab and the one opened by default when a new drawing is started. This is where we can draw all the elements of our project – the map, signs and any annotation in the case of traffic design drawings, and we do this using real world coordinates so it is easy to query distances between two points on the drawing.

Paper Space – these are the “layout” tabs at the bottom left of the drawing area, and these are the sheets we will be plotting on paper. They will contain the title block and one (or more) viewports or views of the “model” we previously created.

The advantage of using the two separate tabs is being able to draw in **model** space and work in real world units (metres) whilst preparing the scheme.

When we want to plot this onto paper, we can use the templates (drawn in millimetres to fit the paper sheet) in the **layout** tabs to fit the previously drawn model as large as possible on the sheet, or set a particular **scale to plot**.

You can see from the screen grab below, this LARGE (1km square) drawing has been in model space (see the model tab highlighted) and there is **NO DRAWING BORDER** in this view.



Creating Custom Layout Tabs

CONE10 provides standard templates at drawing sizes A4, A3, A2, A1 & A0 as standard, these can easily be modified and customised for your own use, then saved as a DWT format file into the template folder:

C:\Program Files (x86)\CADaptor Solutions\Cone10UKBC\Templates\

For use when you use the File|New command.

NOTE: Some users with limited permissions cannot save directly into the above folder, if this is the case save the file to your desktop, close BricsCAD, then MOVE the file to the correct location using the “My Computer” explorer program. However, should you wish to create your own from scratch please use the following steps:

Start a New BLANK drawing.

This tutorial shows a map loaded in the MODEL tab so we can show the different views,

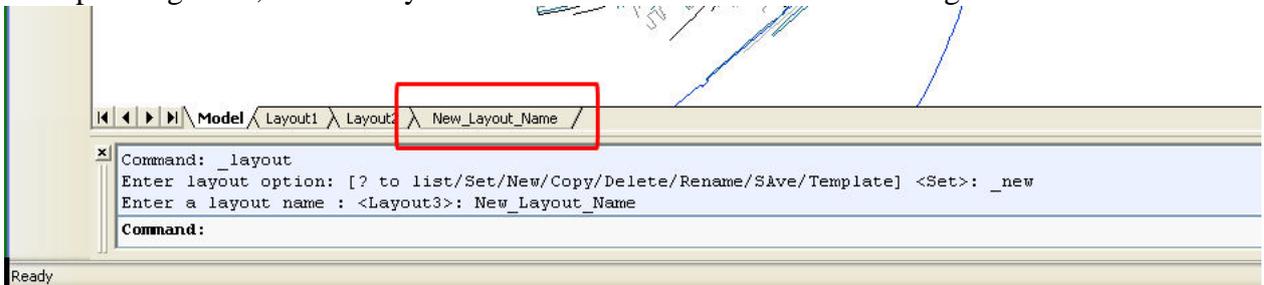
IMPORTANT NOTE: any elements drawn in your templates model space will appear on EVERY drawing you do in the future.

Select Insert|New Layout

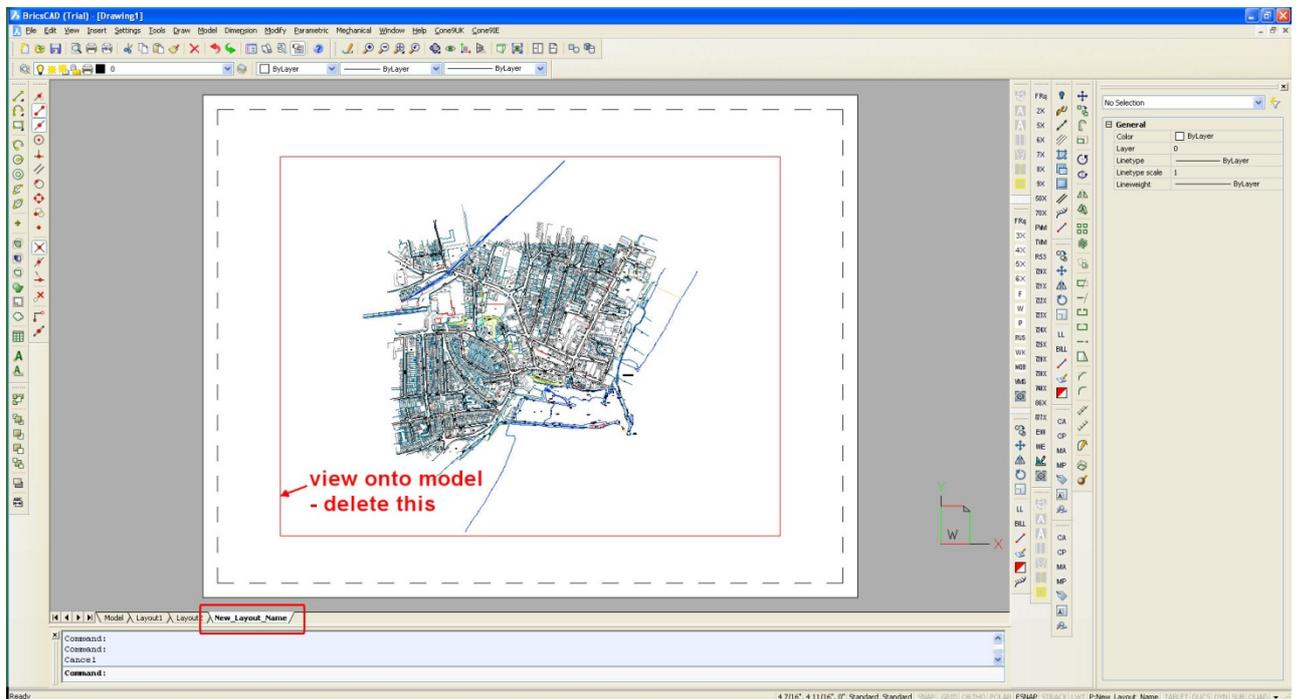
Bricscad will prompt you to give a name for the layout that will appear on the tab, you can use the default name by pressing the enter key, it is possible to change this later.

Enter a layout name : <Layout3>: **New_Layout_Name**

After pressing enter, the new layout tab is created as shown in the screen grab below.



To switch to the layout view, simply click on this tab labelled “New_Layout_Name”



Here you can see the white A3 paper area, the limits the printer can output shown as the outer black dashed rectangle and the window onto the model view (the inner black rectangle).

We will now ERASE the viewport or “model view”, by selecting it and pressing the [DELETE] key or clicking the erase icon. NOTE: The elements you have drawn are still available in the “Model” tab, it is just the VIEW you have deleted.

We can now insert our own title block

Cone9 allowed you to insert title blocks as follows:

Ensure the insert scale is set to 1.0, we check the preferences dialog:

Select Cone9UK|CONE Preferences...

Change the top right value to read 1.0, then click the OK button to save this change.

Next, select Cone9UK|Drawing Frames & North Points...

Select the template file from the C:\CONE9UKIC\BORDERS folder or replace with your own title border if you have drawn one already.

CONE10 users will use the BricsCAD menu Insert|Insert Block...

Click the Browse button to select your drawing border template

Ensure the Insert point is set to 0 0 0

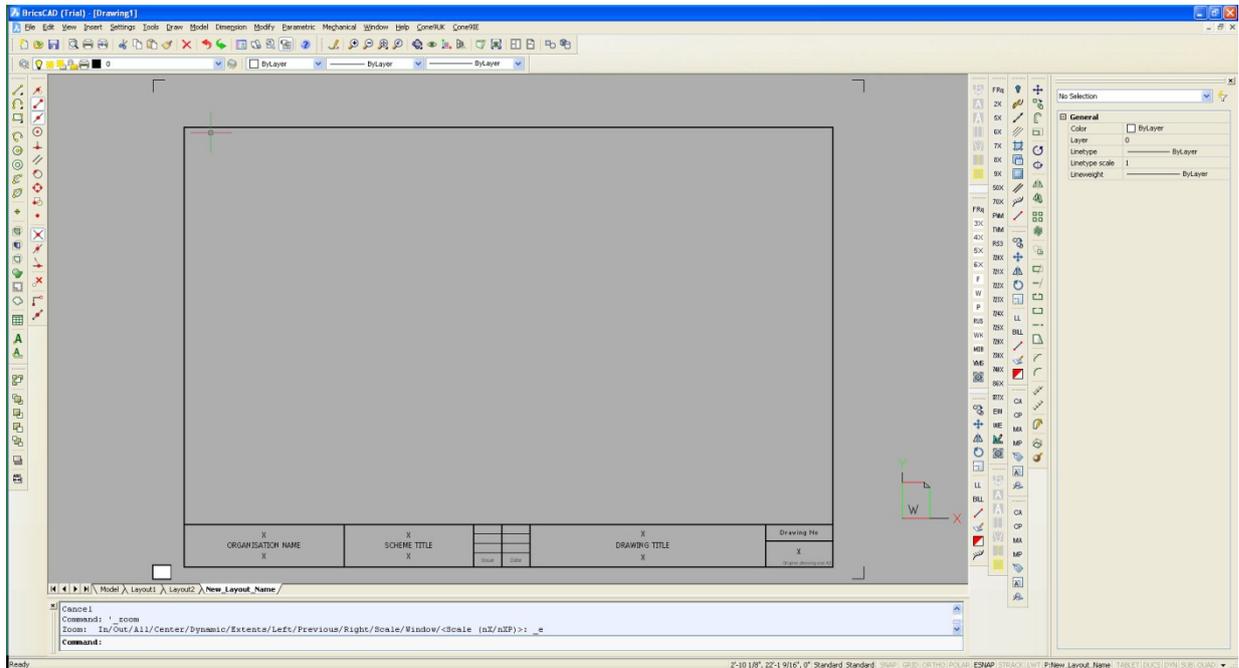
Insert Scale is set to 1 1 1

Insert Rotation is 0

And all three boxes titled “Specify On-screen” are UNTICKED

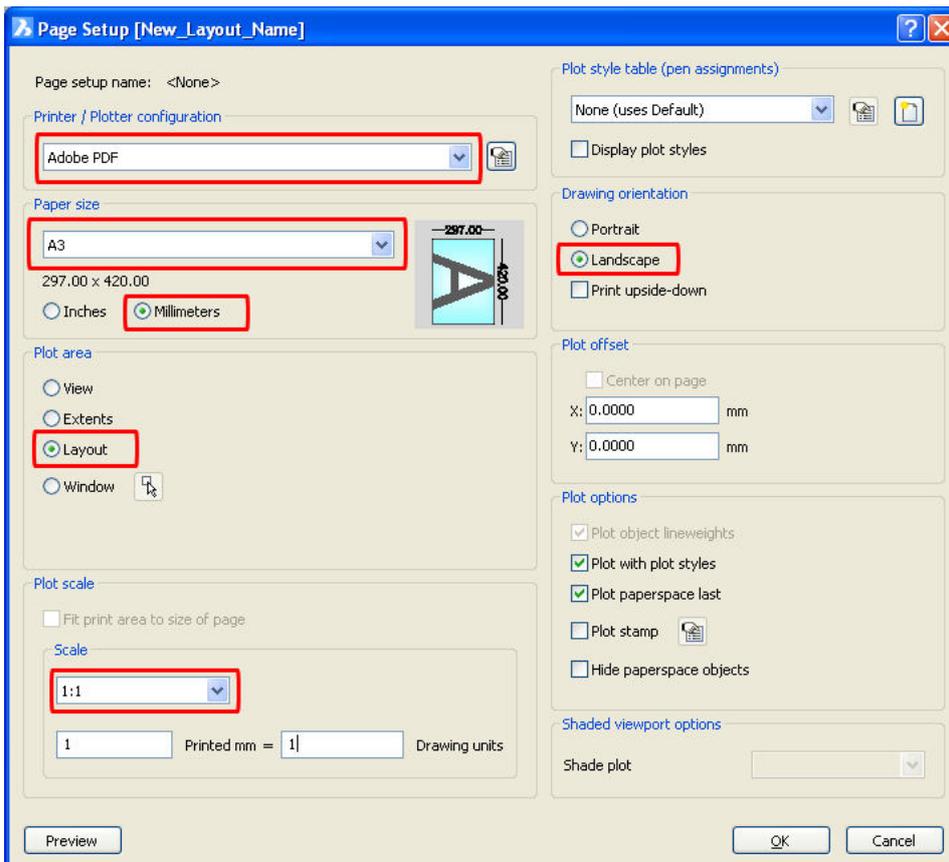
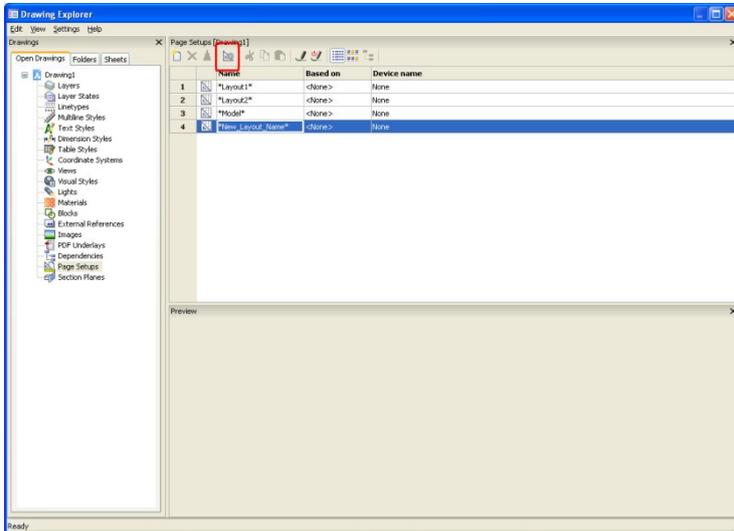
Correcting Plot Setup Defaults

Once the title block is inserted onto the Layout TAB, Zoom to the extents of the new drawing, “View|Zoom|Zoom Extents” or double-click the mouse scroll wheel.



You may notice the drawing border no-longer fits the white paper (shown in the bottom left corner), this is due to incorrect printer settings – normally inches rather than millimetres.

Select File|Page Setup... then click on the “Edit Page Setup” button highlighted below (users of older versions of BricsCAD may go straight to the “Page Setup” dialog at the bottom of this page).



Ensure you select your printer/plotter from the list of those available, here we have the Adobe PDF printer driver selected, then:

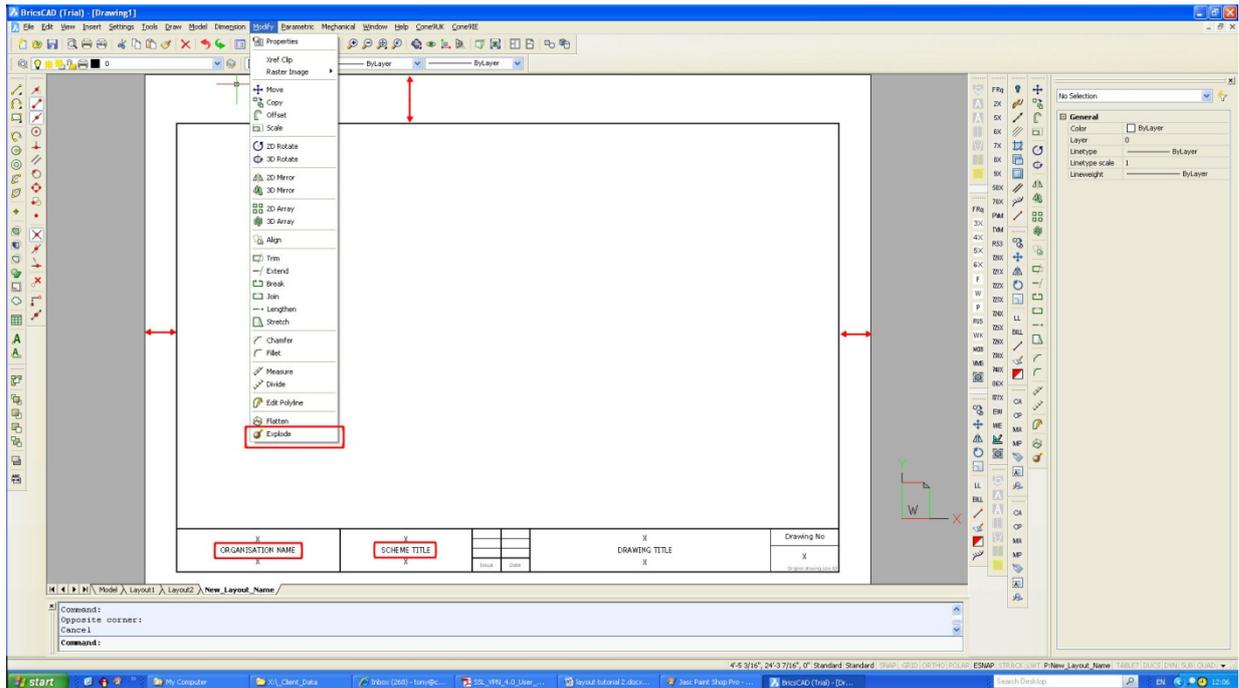
Select matching paper Size to your title block, here:**A3** and ALWAYS set units of **millimetres**

The Plot area MUST be **Layout**

The scale will be **1 printed mm = 1 drawing unit** (as you will draw the title block at exactly the size you wish it to be plotted)

Finally, ensure the paper orientation (right column) is set to **landscape**

Once you are happy with these settings, click the OK button



As you can see, the title block appears within the limits of the plotter's borders.

The standard borders (as noted by the red arrows) are VERY conservative, you should be able to move these out towards the edge of the paper, and still plot them, so giving you a larger drawing area – important on smaller sheets such as A4 – just an extra 5mm at each border will gain you a 10% larger drawing area!

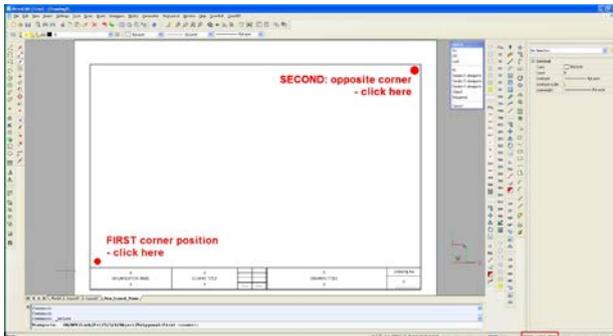
Creating a Viewport within your Title Block

We now insert how the model will viewed on this drawing sheet:

Select View|Paper Space Views

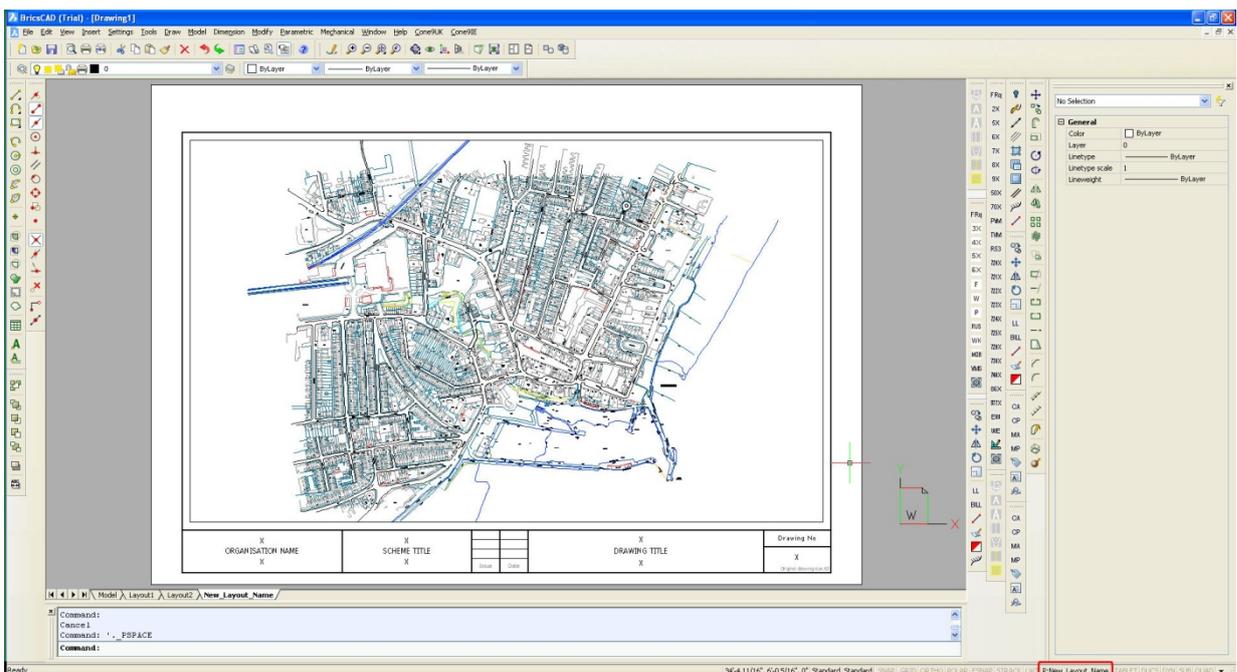
Viewports: ON/OFF/Lock/Fit/2/3/4/Object/Polygonal<First corner>:

Bricscad gives a series of advanced options, all you have to do is select the rectangle viewport corners as shown below:



Once the second point of the rectangle is clicked, Bricscad will show the extents of the model within the rectangle you have just defined. NOTE you should see a blank window as there should be nothing drawn on your model tab.

Normally, you would use the ESNAP feature to lock the viewport window to the edges of the frame border, here we have clicked just inside to show how the model view is clipped.



Switching between MODEL & PAPER space

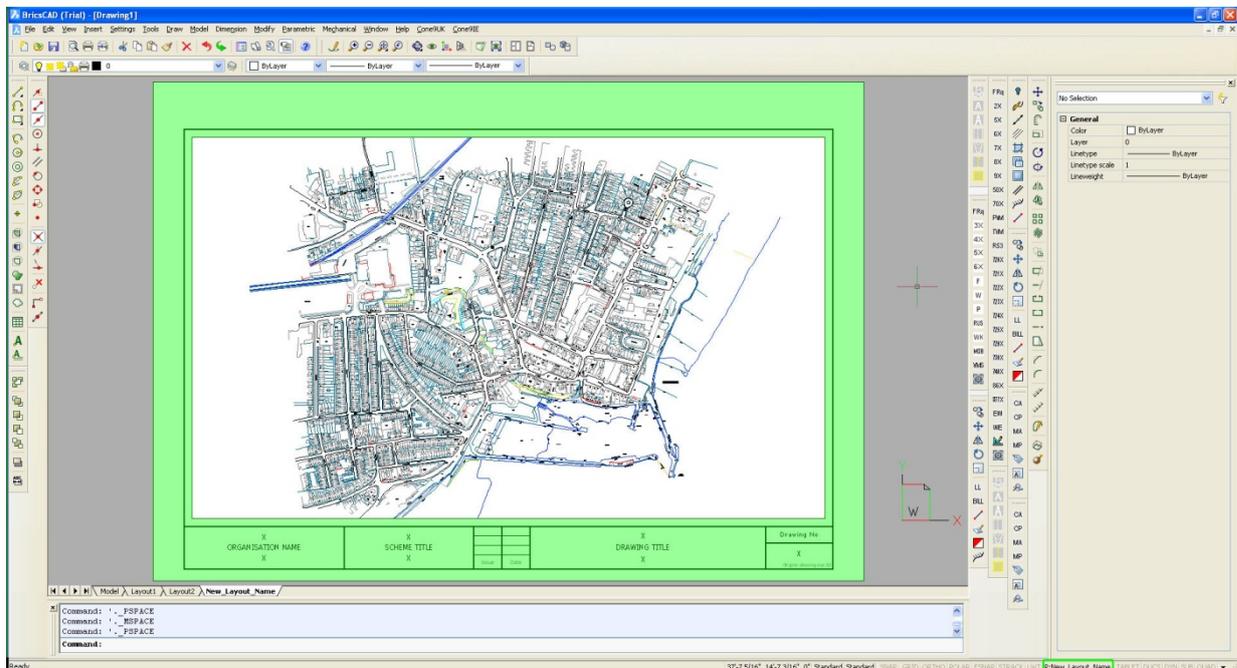
Please NOTE: when you have the title block drawn on the paper of the layout tab AND the project elements drawn in the model tab, you must ensure when zooming or selecting items to edit that you are working with the correct items.

The highlighted section of the status bar, here labelled **P:New_Layout_Name** indicates we are currently working on the PAPERSPACE elements of the New_Layout_Name tab.

To edit or zoom to elements of the title block, (these are in paper space),

To switch between editing paper and model elements click on the layout label in the status bar – surrounded by the green ring below – note: this is NOT the layout tabs. The label toggles between **M:New_Layout_Name** (for model entities) and **P:New_Layout_Name** (for paperspace entities)

Ensure you have this showing the **P:** prefix – see the green areas below:



NOTE:

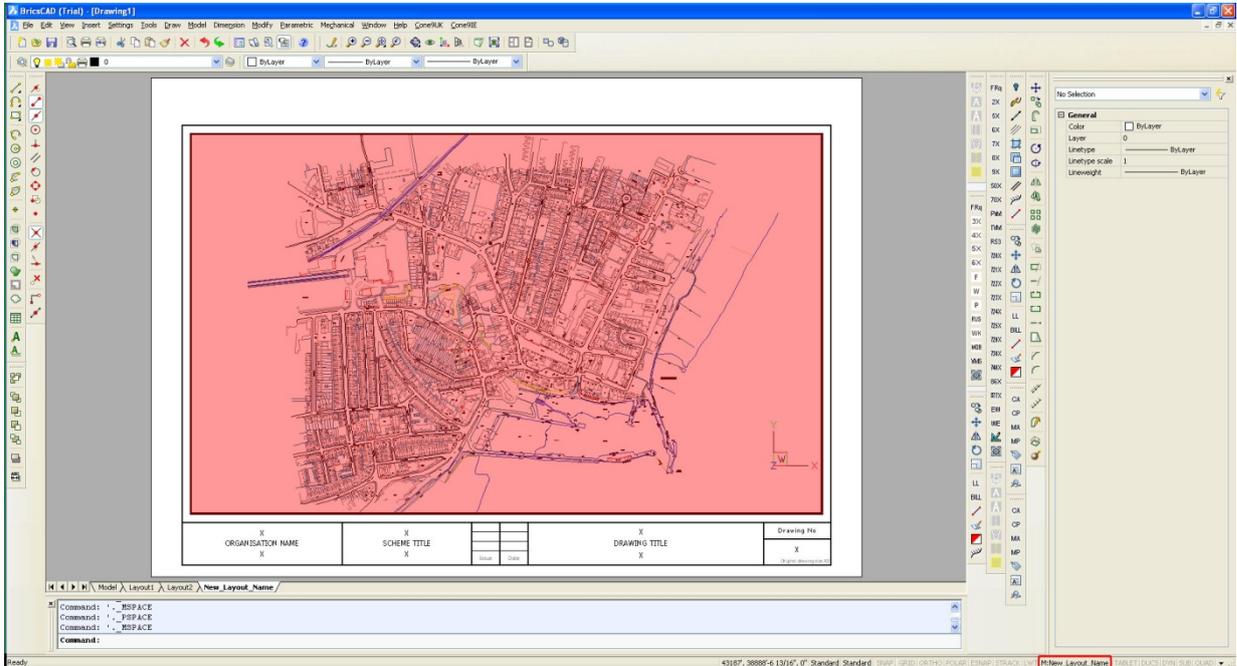
When you have the title block just as you would like, and have SAVED this drawing, Use the menu option File|SaveAs... to save this layout setup as a template file for future use. From the Saveas Dialog, pull the bottom list down, and Select “Drawing Template (*.dwt)” and save the title block template into the templates folder with a suitable name:

CONE9: C:\CONE9UKIC\BORDERS\

CONE10: C:\Program Files (x86)\CADaptor Solutions\Cone10UKBC\Templates

NOTE: restricted users may not be able to save directly into the C:\Program Files (x86) folder, if this is the case, save to your desktop, then MOVE the file using the “My Computer” explorer program.

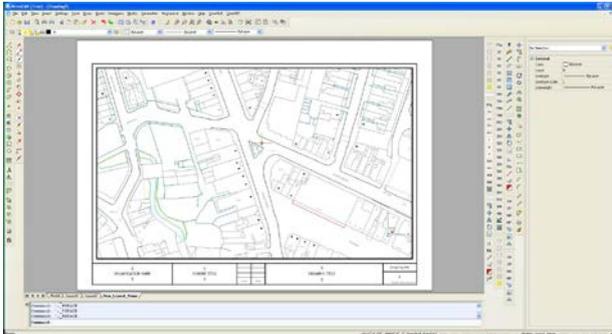
To edit or zoom (change the plotting scale) of the model entities, click on the layout label in the status bar. It will change to read **M:New_Layout_Name** you are now editing or rather zooming the model entities within the layout view (see the shaded area of the drawing below). Alternately, click the Model tab and return to that view, and additions/deletions will be reflected in the layout view, but zooming within the model tab will not affect the layout view.



To switch between editing model and paper elements click on the layout label in the status bar surrounded by the red ring above – note: this is NOT the model or layout tabs. The label toggles between **M:New_Layout_Name** (for model entities i.e. the map & signs) and **P:New_Layout_Name** (for paperspace entities i.e. the title box and text)

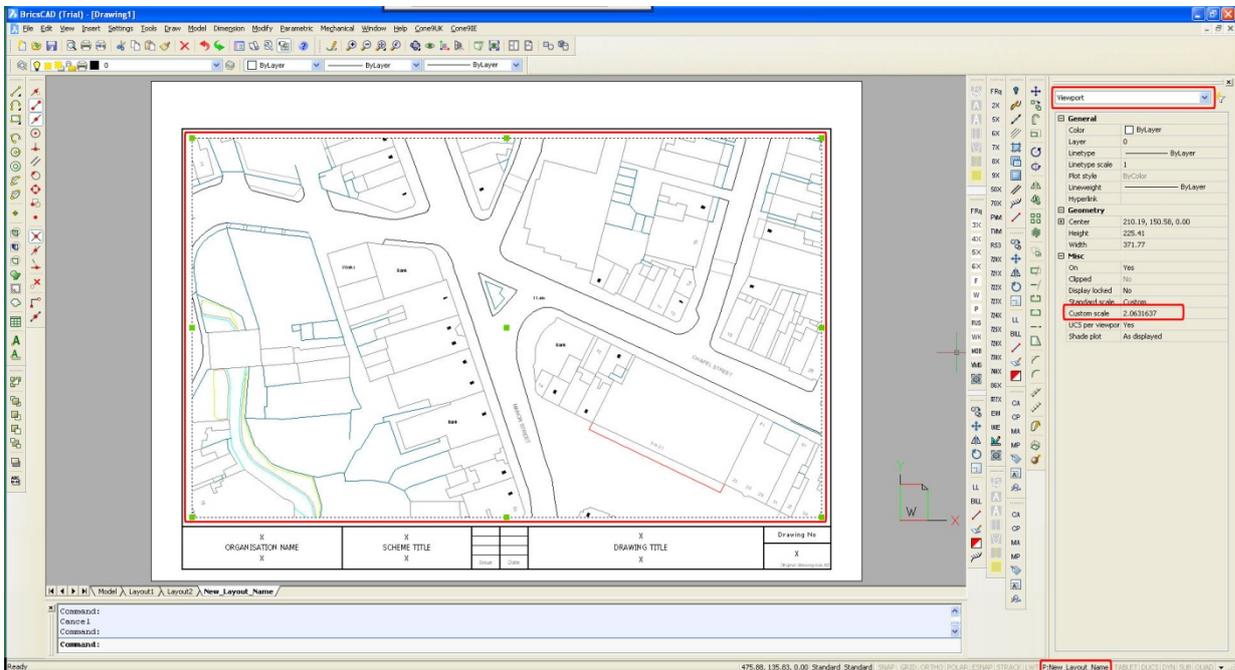
Setting a Particular Scale

Should you wish to plot your road works to a particular scale, you will need to adjust the view scale of the model window as follows, the image below shows the same map as previous screenshots, but at a more detailed view:



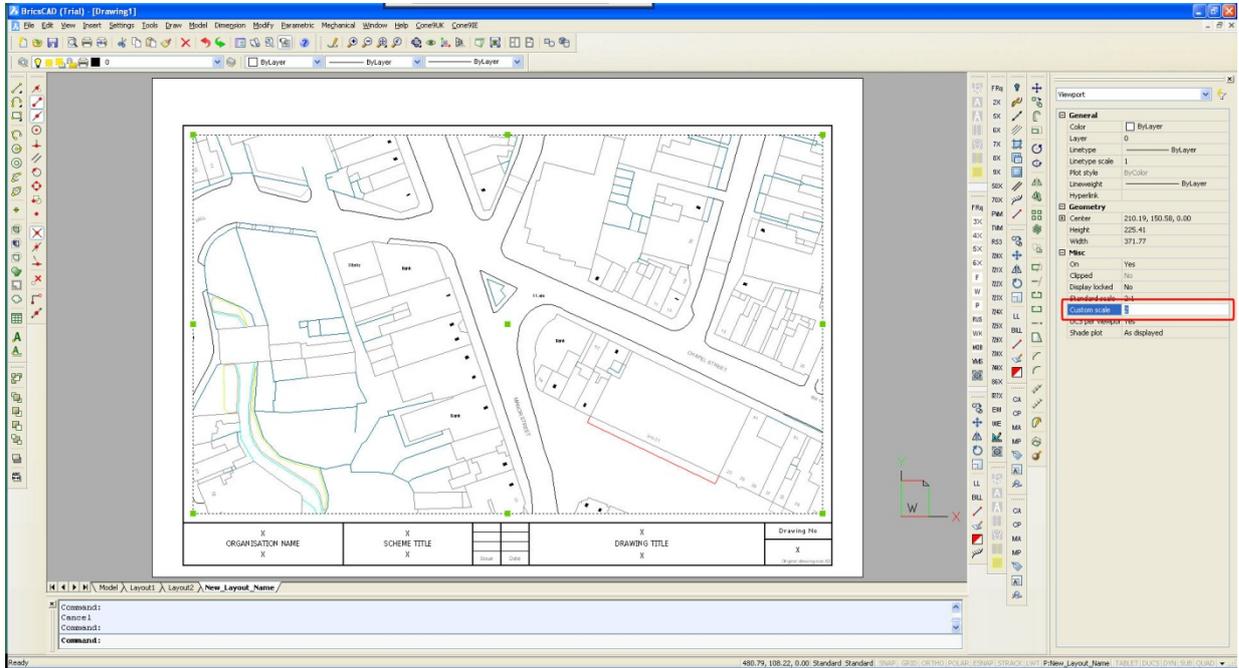
With the selector set to paperspace (**P:New_Layout_Name**) in the bottom right corner of the status bar, select the viewport that contains the view onto the model. This is NOT the drawing border of the title block, but a separate CAD entity – note the highlighted grips in the screen grab below.

Next, right click the mouse and select **Properties** from the bottom of the context sensitive menu. You should see the properties toolbar appear with the selected viewport.



You can now set the Standard scale to one of the set values, or use the Custom scale highlighted. NOTE: as the drawing is in metres and the paper units are millimetres, there is a factor of 1000 difference, the current value of 1:1 is actually 1 plotted millimetre to 1 drawing unit (metre) or rather 1:1000

Assuming you are plotting in MILLIMETRES, and you have drawn your plan in METRES, here is a list of custom scales to set.



| Scale req'd | Custom Scale to Enter | Approximate Ground Area on A3 drawing sheet (no title block & 10mm borders) |
|-------------|-----------------------|---|
| 1:50 | 20 | 14 x 20m |
| 1:100 | 10 | 28 x 40m |
| 1:200 | 5 | 55 x 80m |
| 1:250 | 4 | 70 x 100m |
| 1:500 | 2 | 138 x 200m |
| 1:1000 | 1 | 277 x 400m |
| 1:1250 | 0.8 | 346 x 500m |
| 1:2500 | 0.4 | 692 x 1000m |
| 1:5000 | 0.2 | 1385 x 2000m |
| 1:10000 | 0.1 | 2770 x 4000m |
| 1:25000 | 0.04 | 6925 x 10000 (7km x 10km) |

Multiple Viewport Windows

It is possible to have more than one view of the drawing model:

by reselecting View|Paper Space Views you can define additional viewing windows on the paper space, this enables you to have a location plan in a smaller windows as well as a larger detail of the area of works.



Plotting Resulting Layout

When plotting the layout, please ensure you have **LAYOUT** selected as shown below, and set the plot scale to **1:1**

