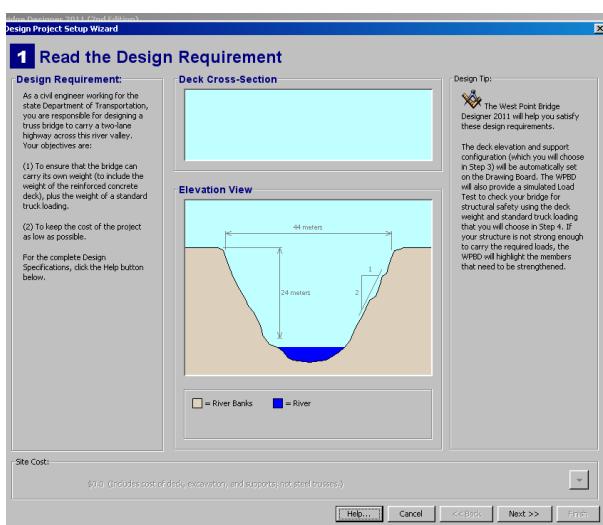
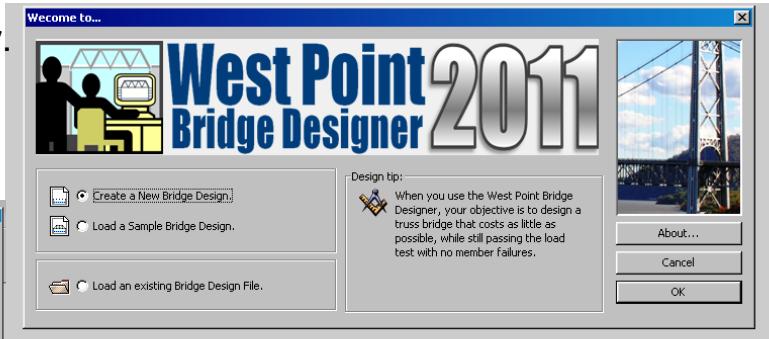


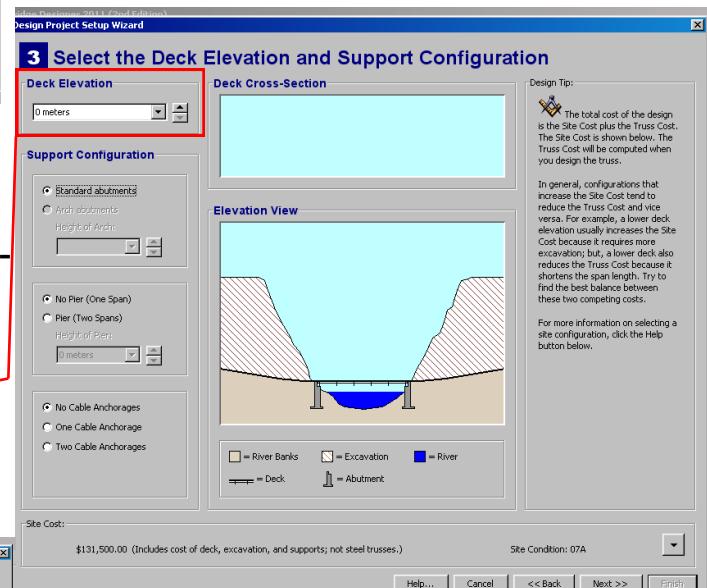
West Point Bridge Designer

West Point Bridge Designer will introduce you to engineering through an authentic, hands-on design experience. This software provides you with the tools to model, test, and optimise a steel bridge, based on realistic specifications, constraints and performance criteria.

Open West Point Bridge Designer.
You will see this box appear,
Click OK

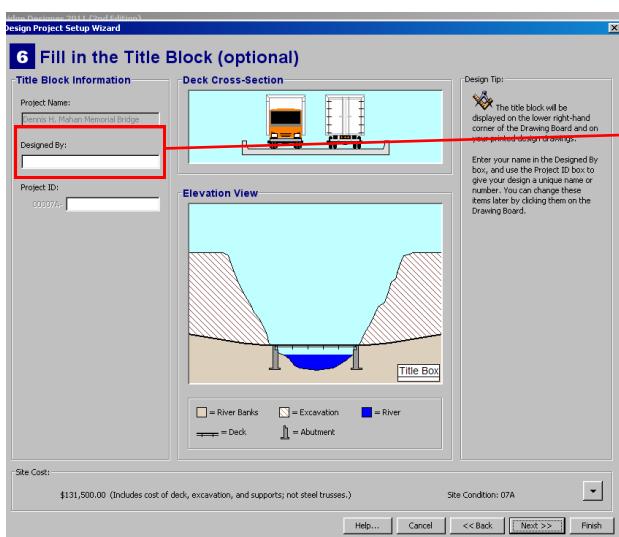


This box shows the place where the bridge is to be built. **Click Next twice**



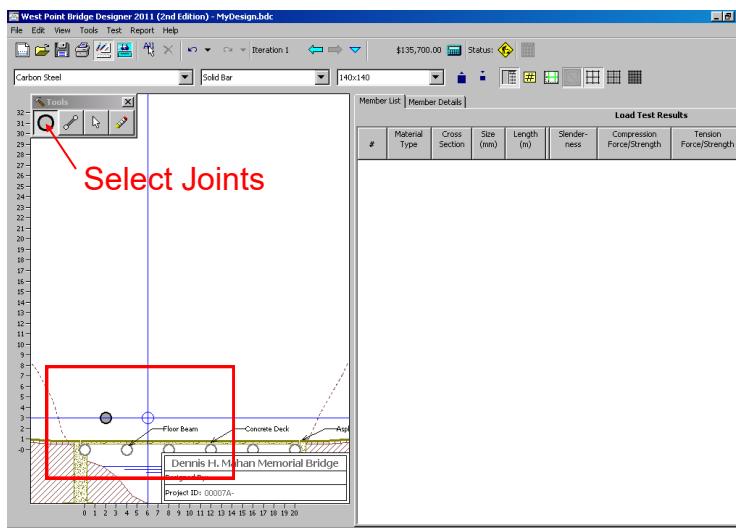
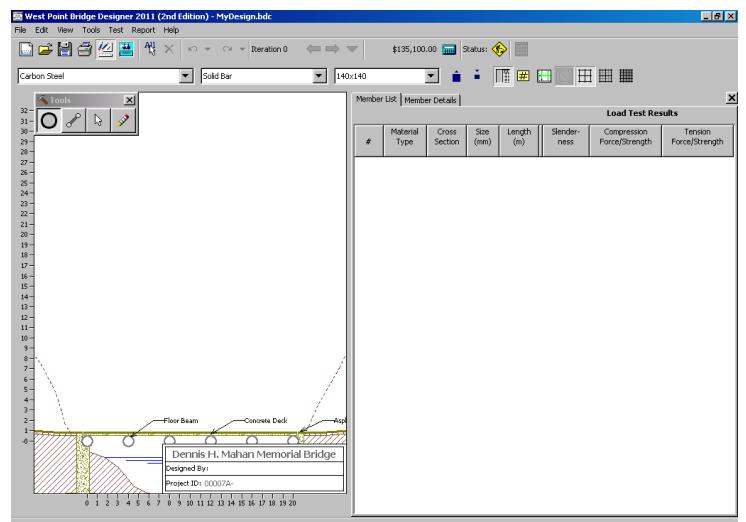
This is where you need to change the height of the bridge. It is far cheaper to excavate the ground around the river than to use lots of steel to build a higher bridge.

Set Deck Elevation to 0 Metres and click Next three times.



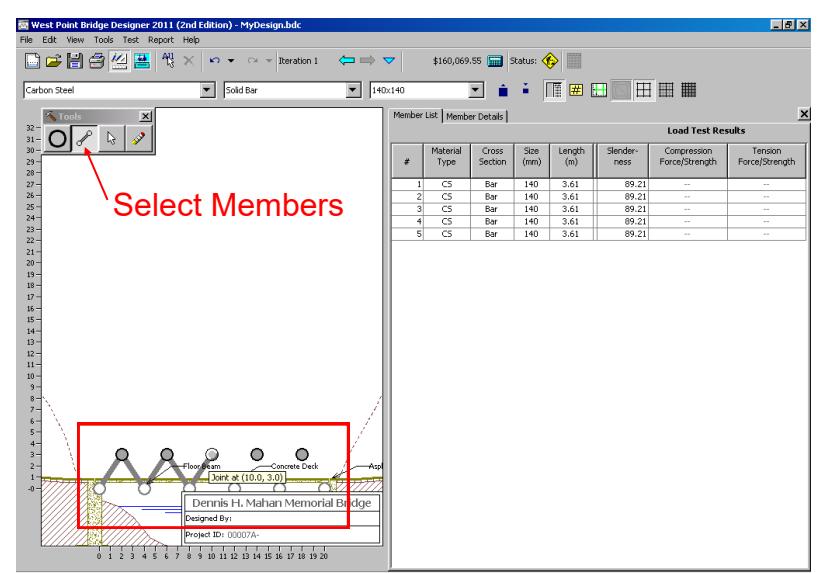
Add your name to the **Designed By** box and click **Next** then click **Finish**.

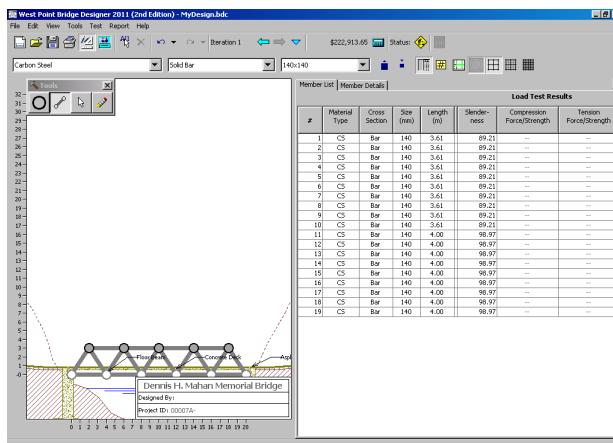
You will now see the drawing board where you will design your bridge. The first thing you need to do is **add the joints** where the members will connect. This is shown below by hovering your cursor over the drawing board, and clicking where you want the joints to be placed.



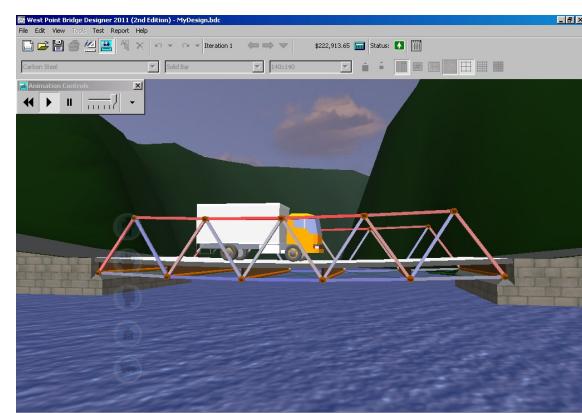
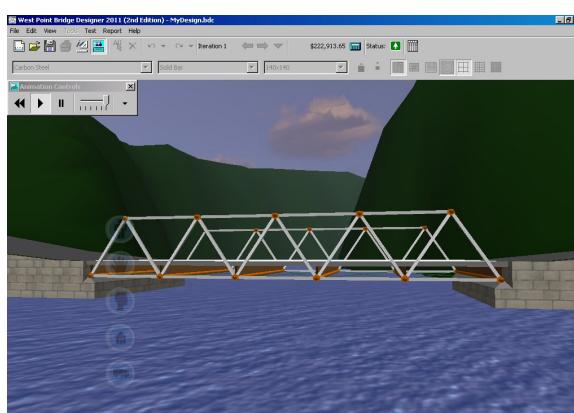
Once you have placed all of your joints, select the **member tool** and connect the joints together. This is done by clicking on a joint and dragging the member to the next joint, as shown below.

As you can see, as each member is added, a parts list is added to your screen on the right hand side. We will use this later to change the thicknesses of each member to get the cheapest bridge we can, without it falling down!





Once you have your completed design you will be able to test your bridge using the simulation button.



The simulation will show your bridge being tested under the weight of the lorry. The red colouring indicates members which are under Compression (being squashed) and the blue colouring indicates members which are under Tension (being stretched).

The Challenge

Now you need to try and build the cheapest bridge you can. This is done by changing the thicknesses of each member, the material type or even if it is solid or hollow. This can all be done using the grid on the right hand side of your screen. To change a member either click on it on the drawing or in the table. Then change the settings at the top of the screen. The costing for your bridge is shown here.

HINT

You want to make the value in either of these columns as close to 0.99 as you can get it.

#	Material Type	Cross Section	Size (mm)	Length (m)	Slenderness	Compression Force Strength	Tension Force Strength
1	CS	Bar	140	3.61	89.21	...	...
2	CS	Bar	140	3.61	89.21	...	...
3	CS	Bar	140	3.61	89.21	...	...
4	CS	Bar	140	3.61	89.21	...	...
5	CS	Bar	140	3.61	89.21	...	...
6	CS	Bar	140	3.61	89.21	...	...
7	CS	Bar	140	3.61	89.21	...	...
8	CS	Bar	140	3.61	89.21	...	...
9	CS	Bar	140	3.61	89.21	...	...
10	CS	Bar	140	3.61	89.21	...	...
11	CS	Bar	140	4.00	98.97	...	...
12	CS	Bar	140	4.00	98.97	...	...
13	CS	Bar	140	4.00	98.97	...	...
14	CS	Bar	140	4.00	98.97	...	...
15	CS	Bar	140	4.00	98.97	...	...
16	CS	Bar	140	4.00	98.97	...	...
17	CS	Bar	140	4.00	98.97	...	...
18	CS	Bar	140	4.00	98.97	...	...
19	CS	Bar	140	4.00	98.97	...	...