How to use Tunnel

Find it here:

https://bitbucket.org/goatchurch/tunnelx/downloads

Download the .bat and the .jar files and save them somewhere like "c/program files"

How to Tunnel

- Tunnel is some really good borderline fun cave drawing software created by **Julian Todd (CUCC)**.

- Once you get use to it it's more like playing an online flash game, than drawing up a cave passage.

- It allows you draw cave passage & later warp it if you need to close a loop.

- Use the inbuilt tutorials to teach yourselves the fundamentals, this guide will teach you how to set up a section of cave to draw on top of.

- The only limitations I can think of when using tunnel, is that it doesn't do elevations very well & there are no keyboard short cuts for things like delete & back.
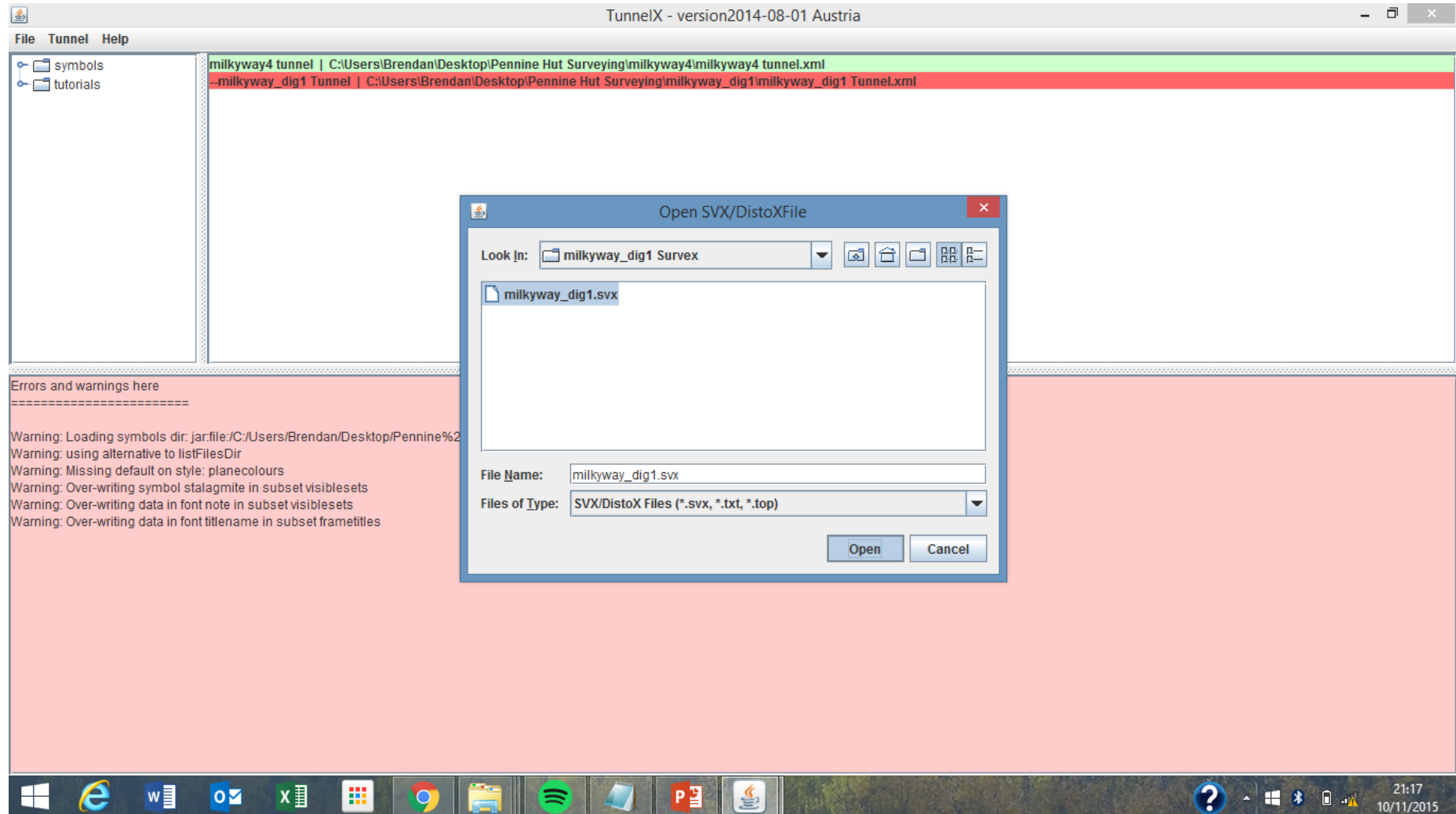
The Tutorials

This manual talks you through how to draw up a cave, in order to learn how to use the software you will need to go though the built in tutorials. They don't take long and teach you all the fundamentals.
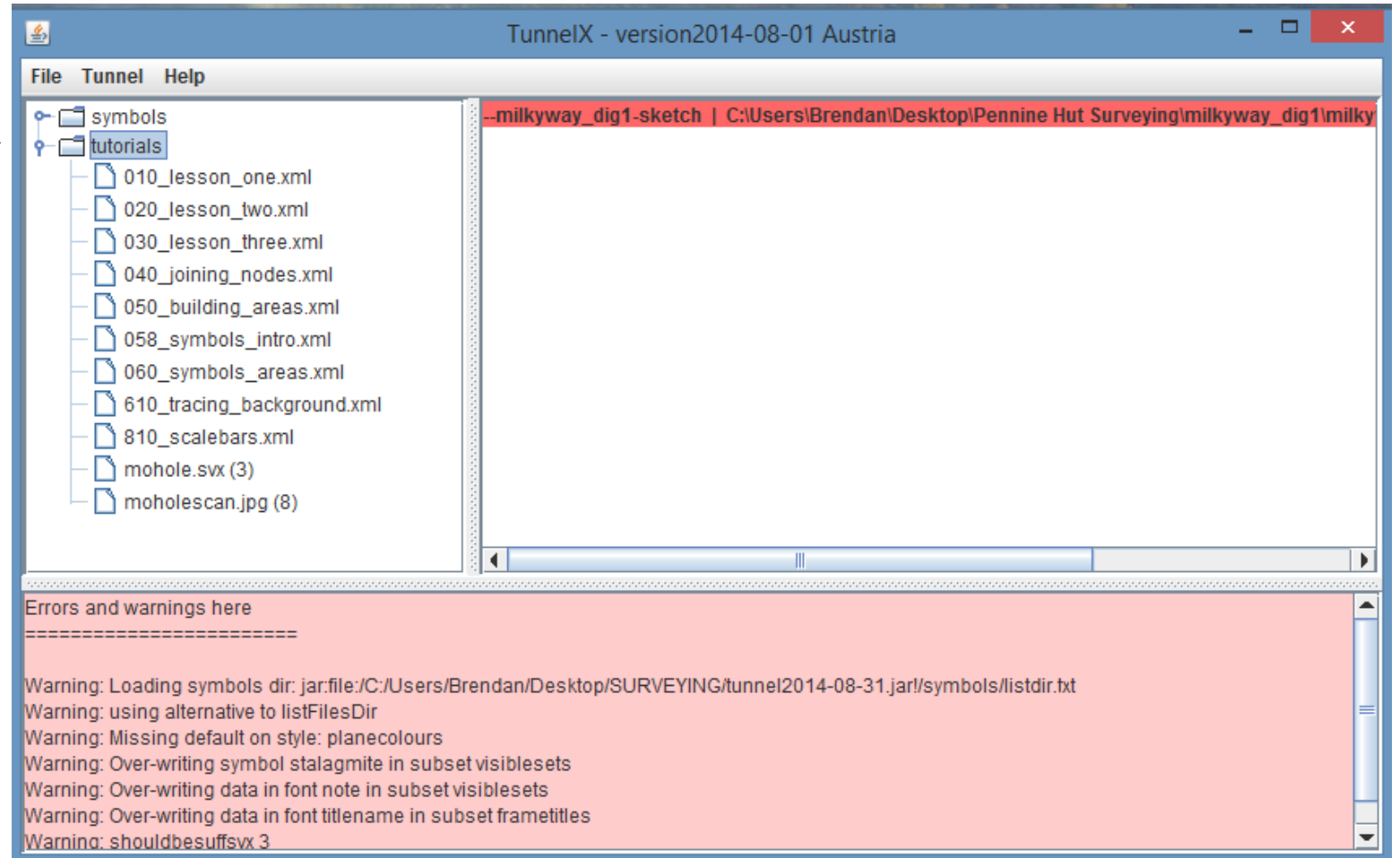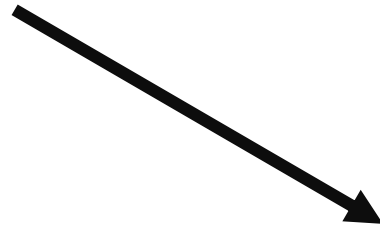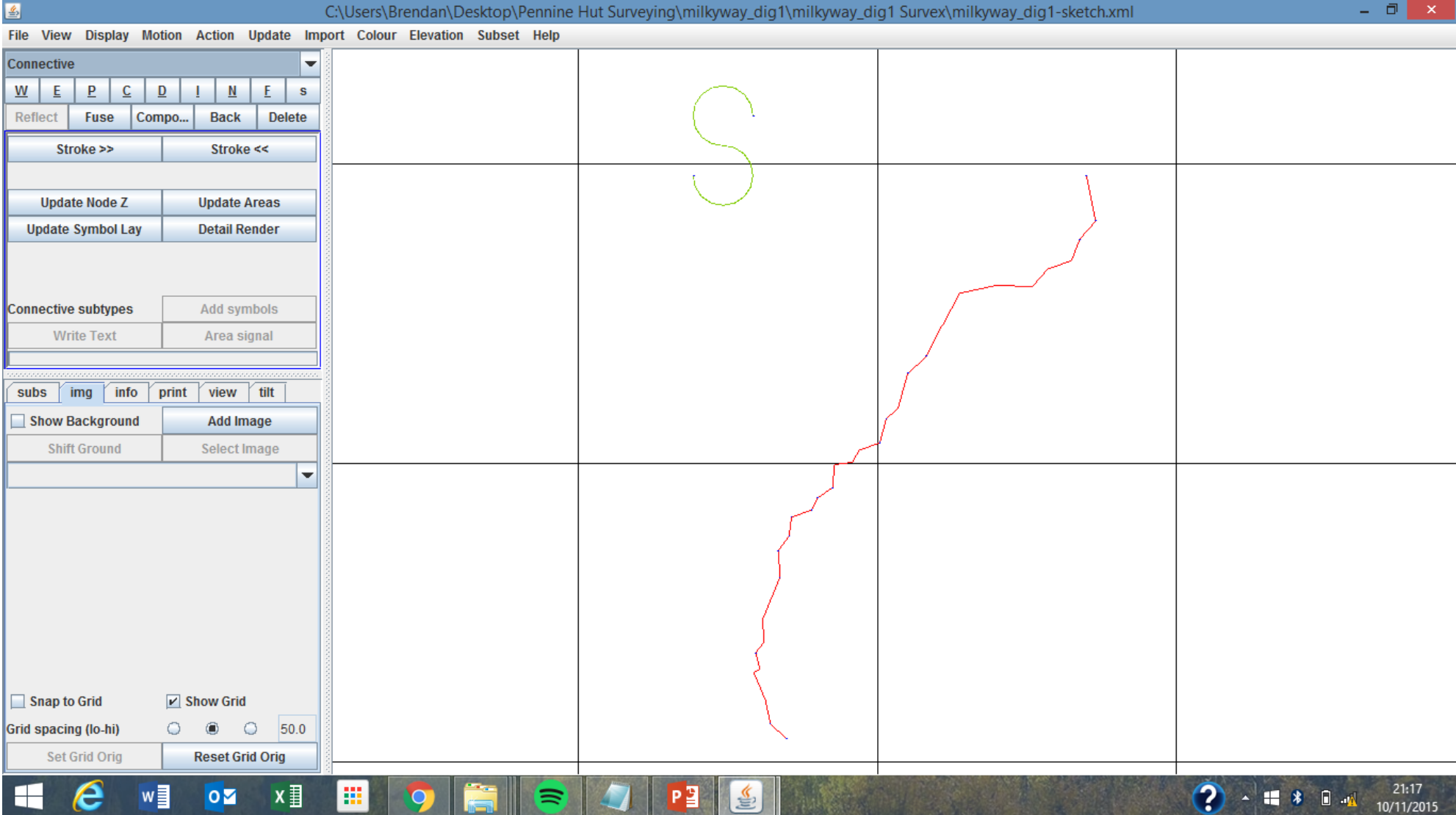
# Import a survex centerline file
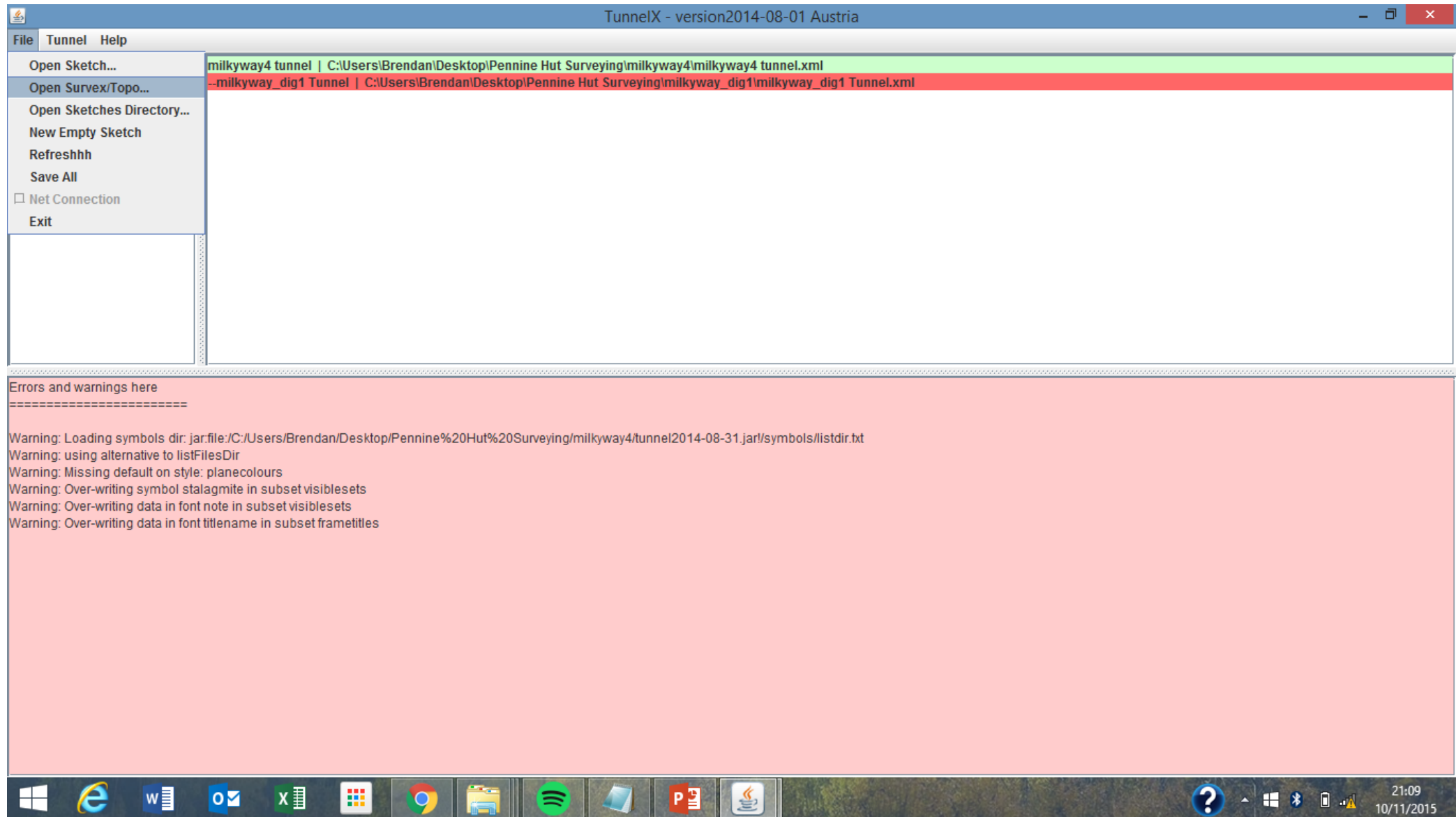
Select and open a survex file

Ignore the 'S', it's just there "because it has to be" as far as I know.

Add a sketch to the background to draw on top of. Note the section has to be drawn to scale so it matches the centreline exactly, this can be done by printing out the survex file and drawing on top of it using the sketches. Or importing an Image from a PDA.
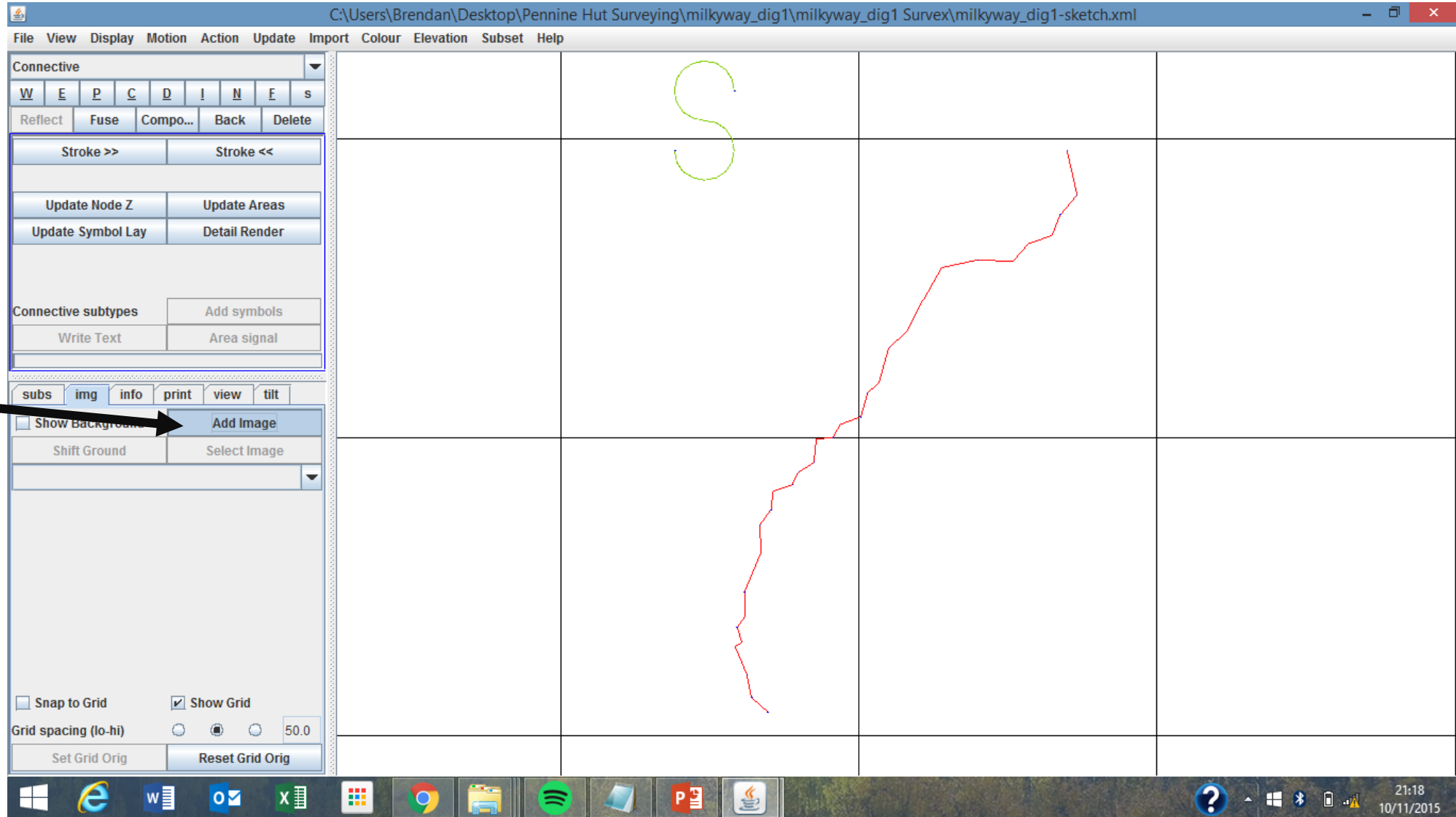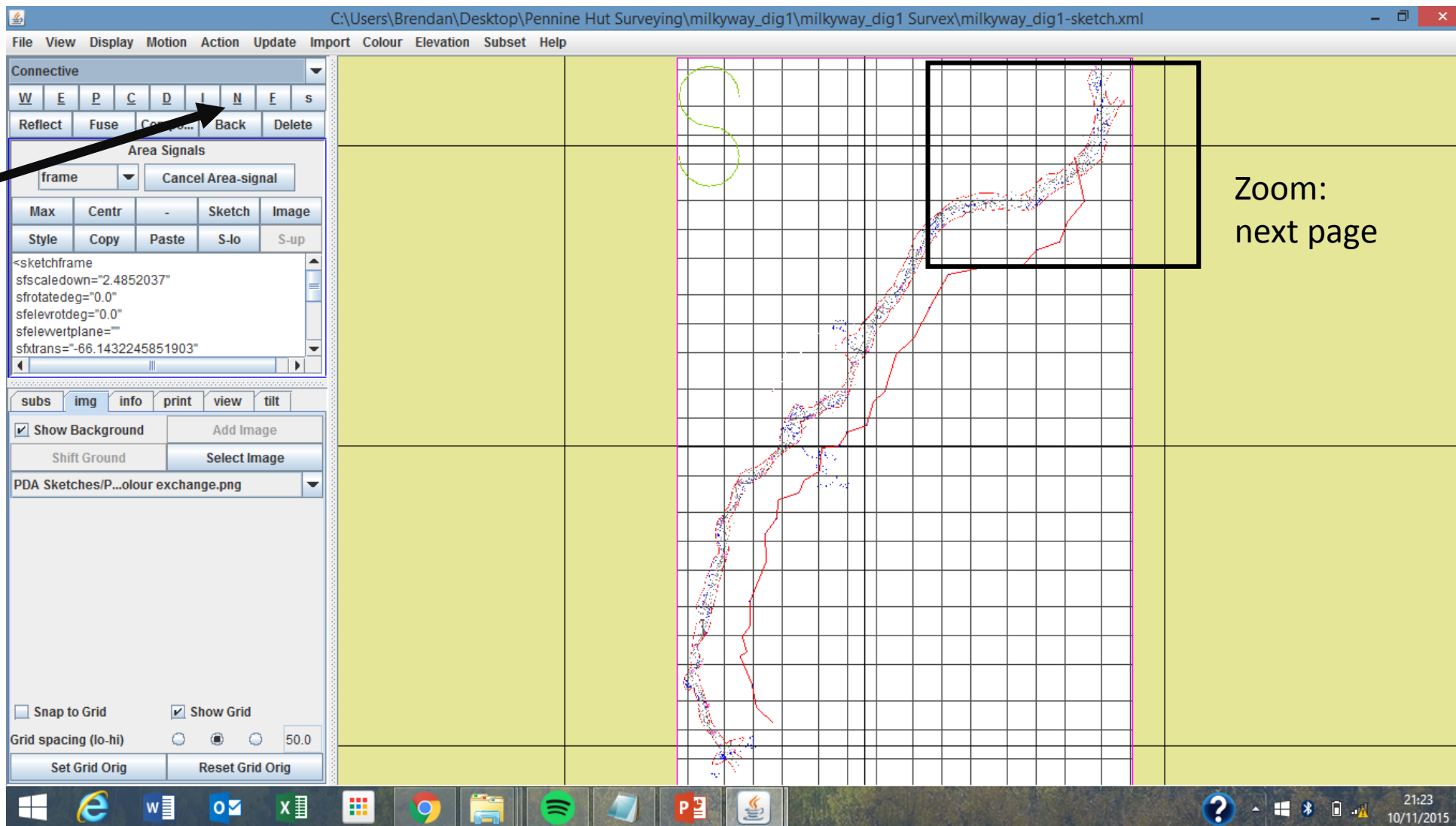
I think the sketch can be in any format, I've only used JPEG and PNG so far.
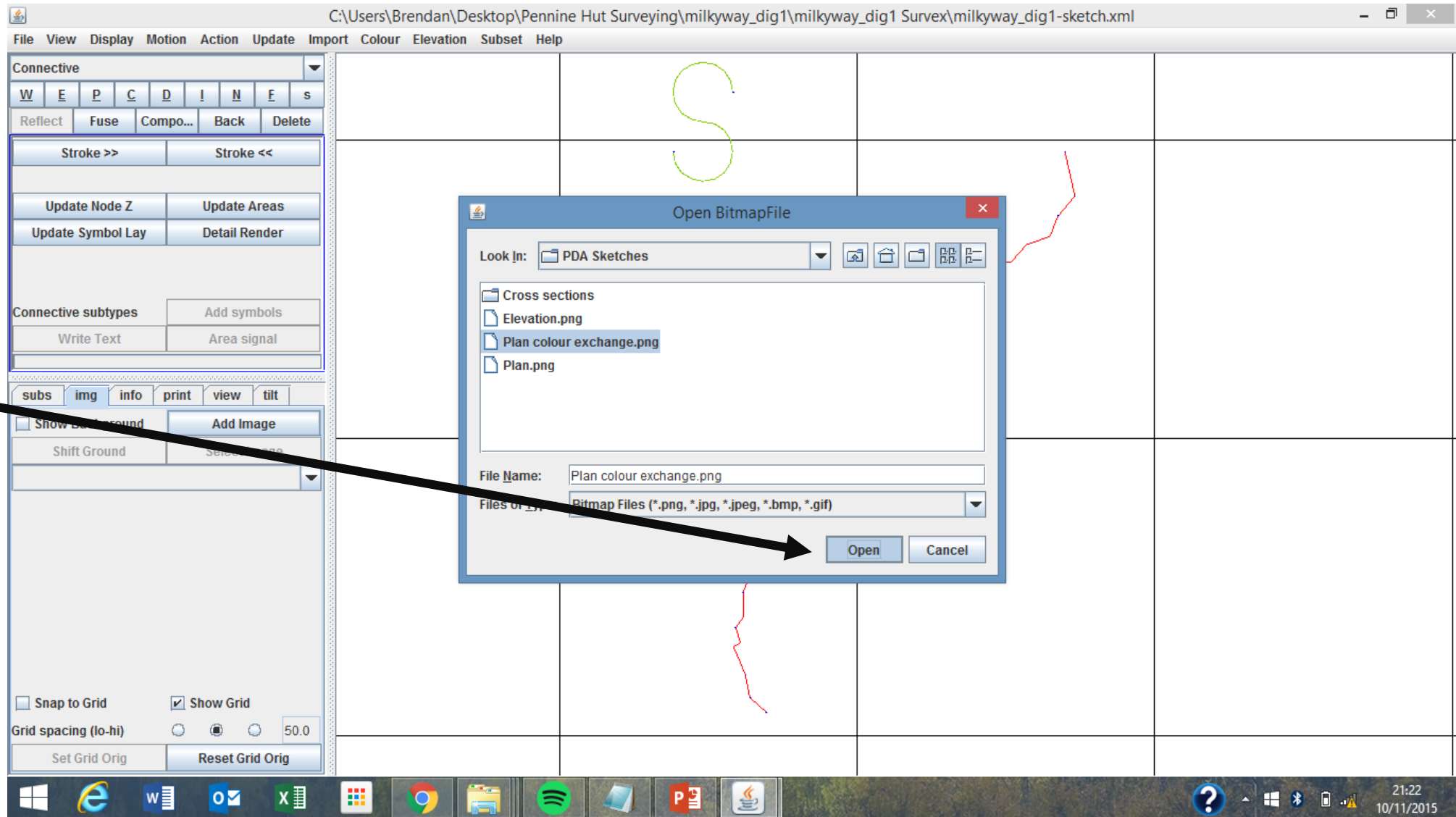
Now you need to match up a point on the sketch so it matches up with the centreline –
see the next page to learn how to do this.
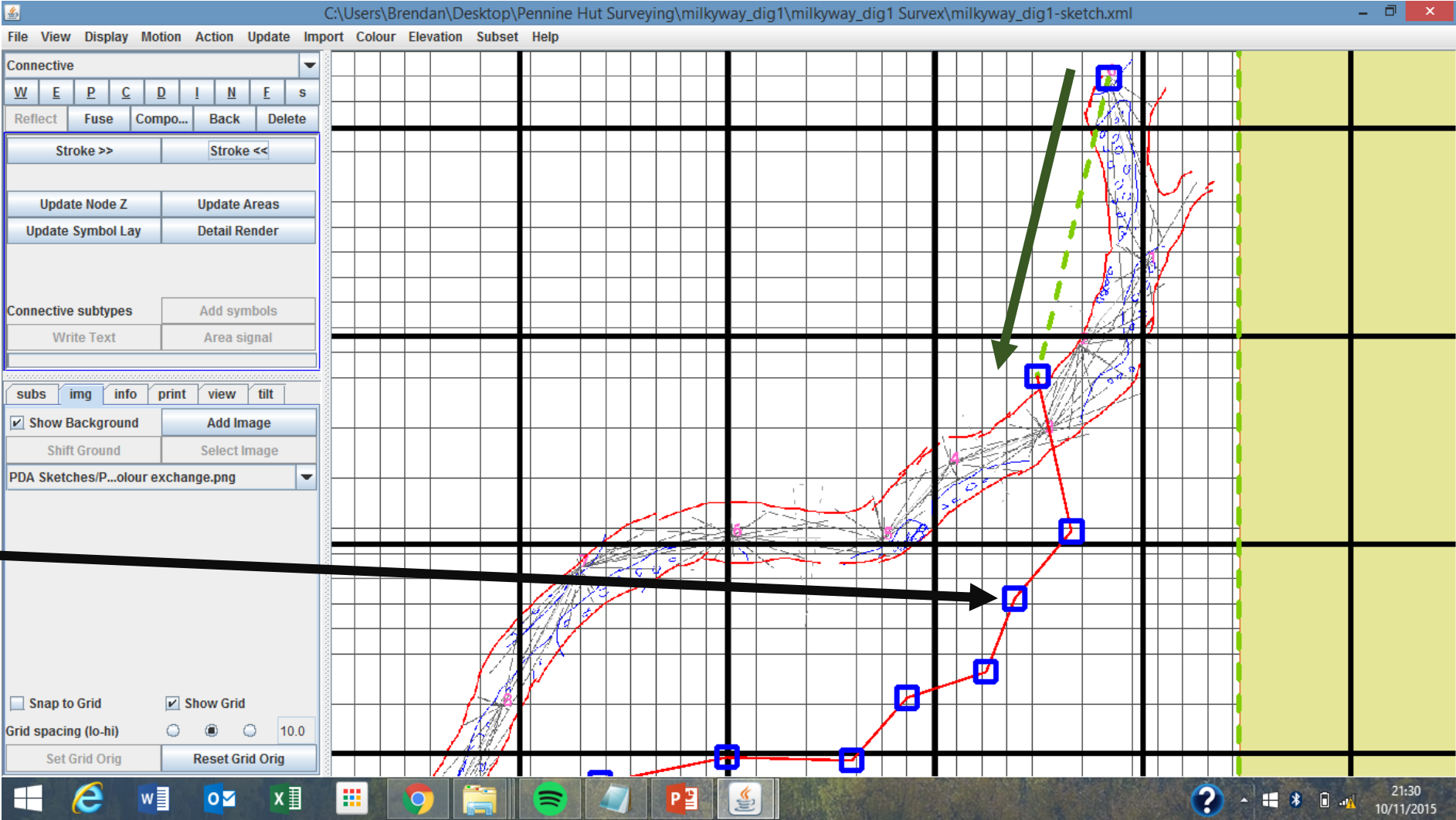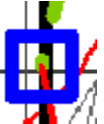

Using a Connective Line.

Julian: "N for Co **n n** ect"

Zoom: next page

To move the sketch over to the centreline, connect the first station on the sketch to the first station on the centreline. remember to hold down ctrl in order to connect 2 nodes (connecting squares) together.

Note: you need
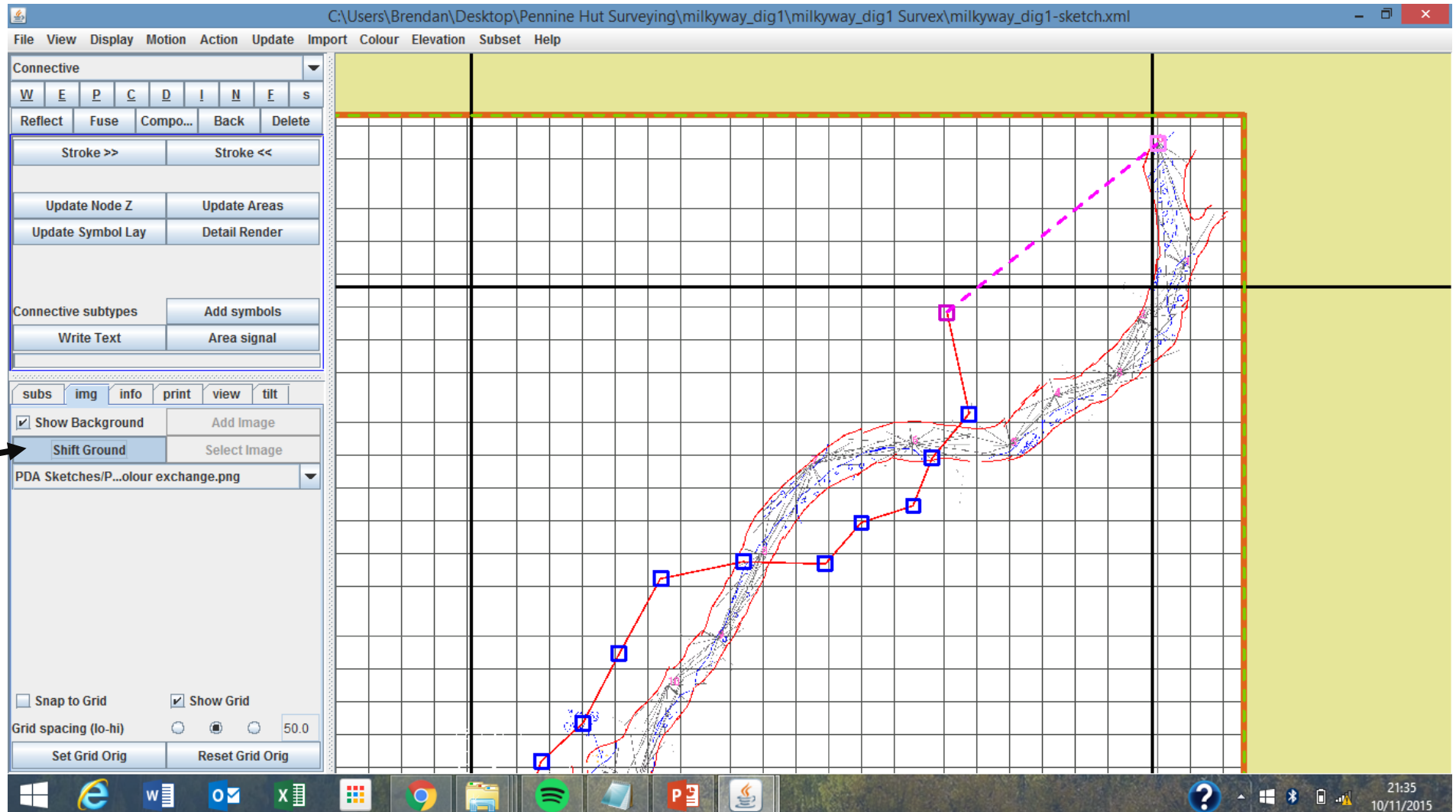To hold down ctrl
when you are
Attaching a line to a
Node

Node =

Shift Ground

Make sure
the connective
line has been
selected, (right click
the connective line)
it will show up
pink if when it has
been selected
like in the example

Then Click "shift Ground"
this will drag the point
you have selected on your
image over to where you
have selected on the survex
centerline (in red)

Scale and Orientate

Using the connective line (N) join
the survey station you just matched
Up with the last point in the sketch
Join this point with the last point
On the survex centreline

1. Station 1
2. Last station on sketch
3. Last station on survey

Note: you don't necessarily have
to use the first and last station
in the survey, although it is probably
the best option. This method works
With any two stations.
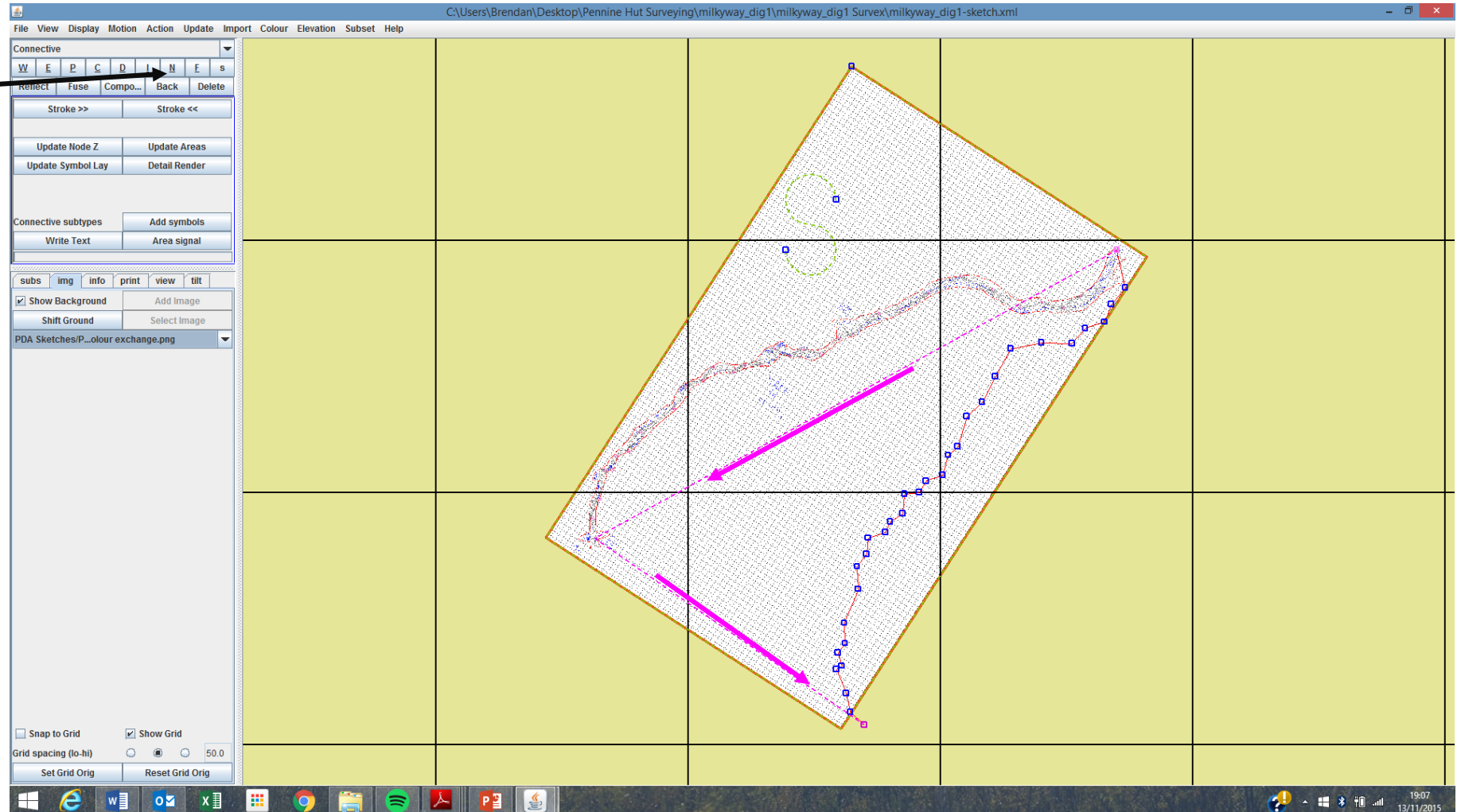
Now your sketch lines up with the centreline, you need to make sure it connected to the survey. Just connect the Corner node of the sketch with a station on the centreline.

Note: be carful to not accidentally change the bounding box of the sketch into a wall (Blue line) this would become a problem later when you try to "fill areas" and the whole sketch is filled.
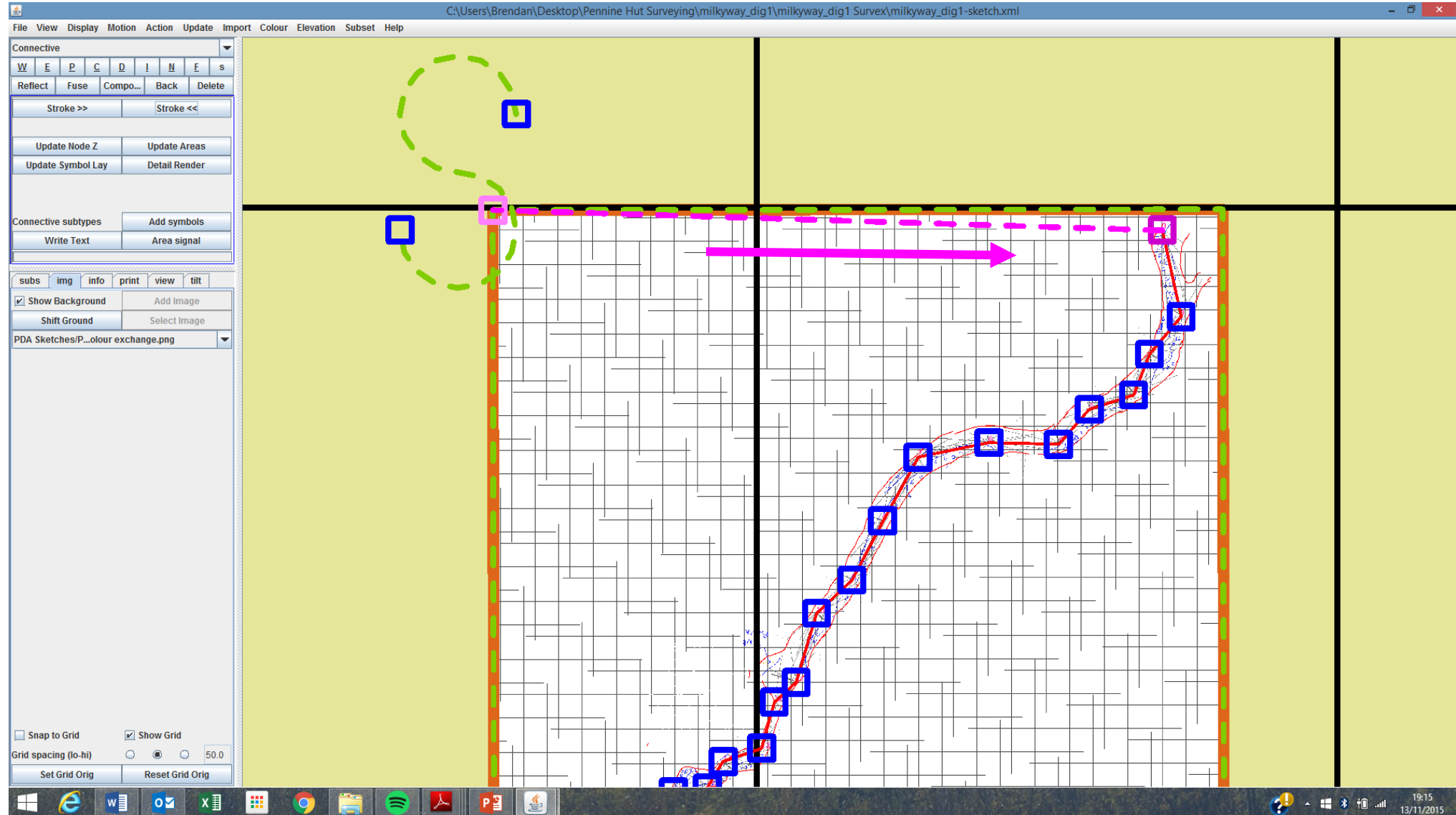
Time to actually start drawing the cave, make sure everything else is deselected by right clicking off the sketch. In the next Few slides I will go through some of the things taught in the inbuilt tutorials. Although the following steps will be easier if You complete the tutorials yourself.

Some pointers

change the style of the lines by choosing from the menu here

You can disconnect the cursor from the drawing line by clicking back.

In order to change the thickness of the drawing lines click "stroke"

To remove the background from the tunnel drawing click this button

Double click at the end of a line to finish drawing a section of wall
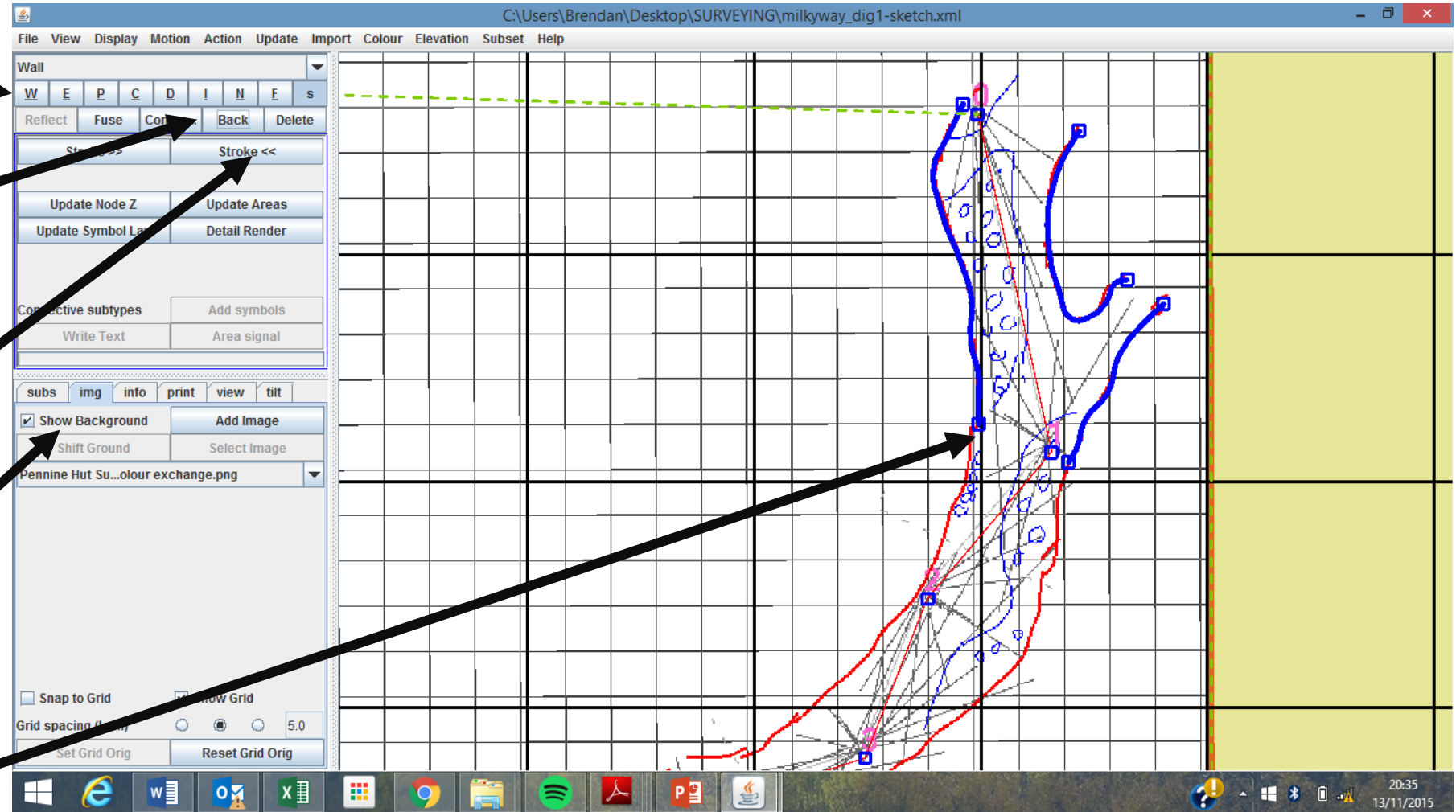
When drawing the walls it is important to connect the walls to the centreline, this allows the passage drawing to be warped Later on if there is a loop closure.
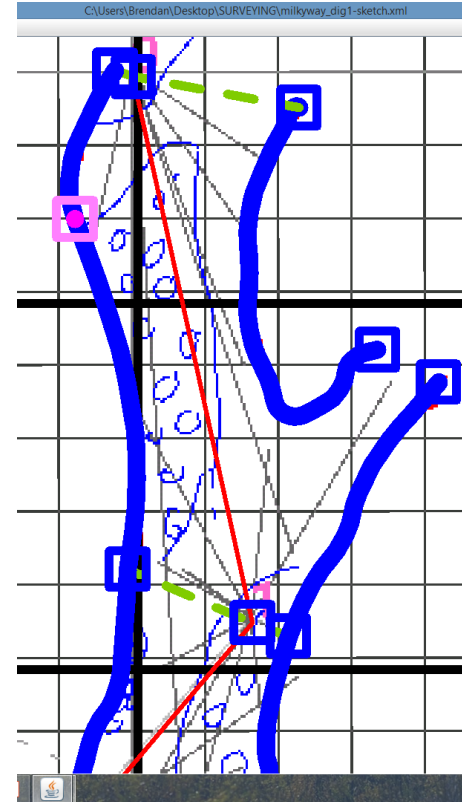
Remember, hold down ctrl when joining nodes together
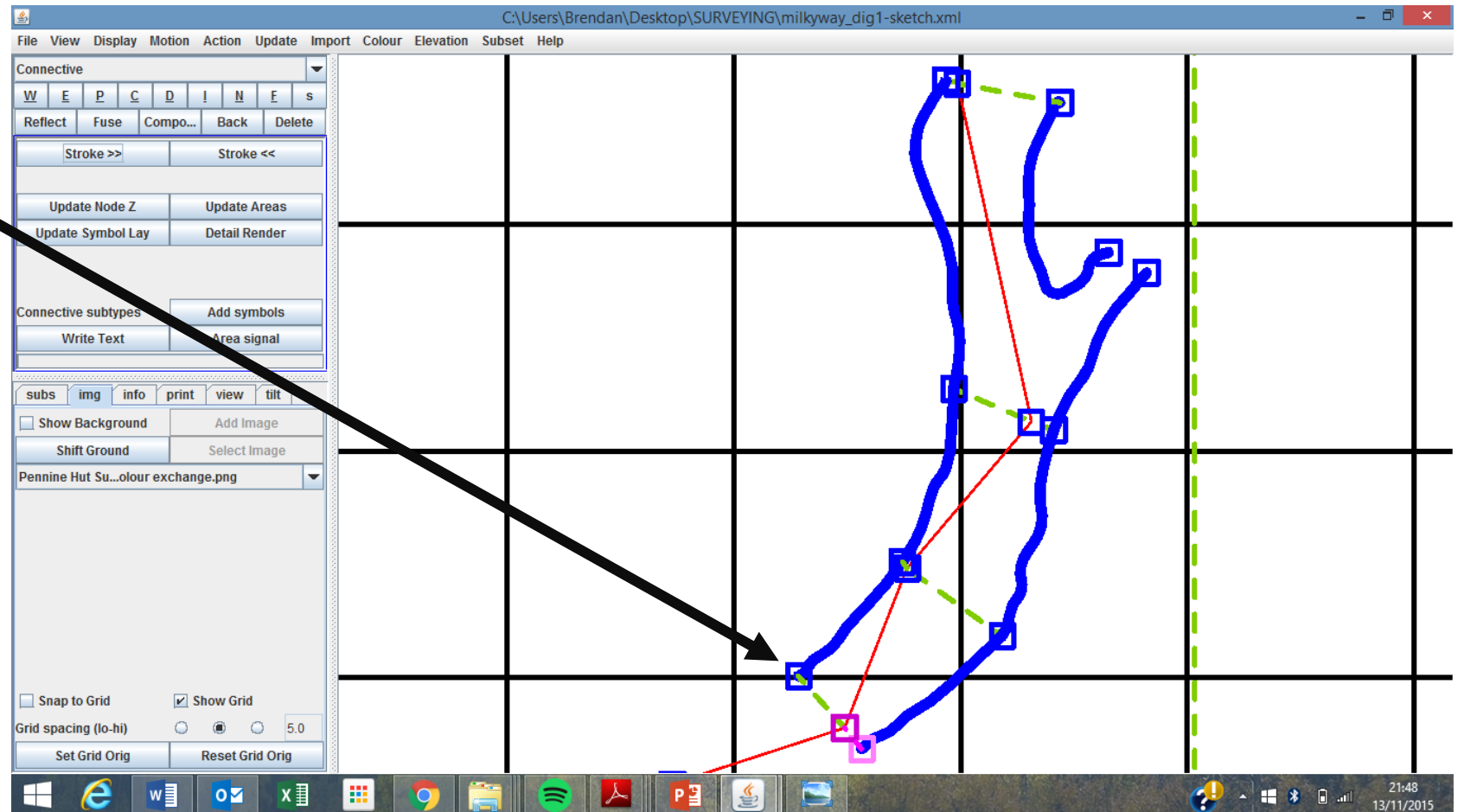
In order to add detail to the cave you may need to insert a node in the middle of a section of wall, Remember everything needs to connect to everything else if the software is to accept the details you insert as part of the cave
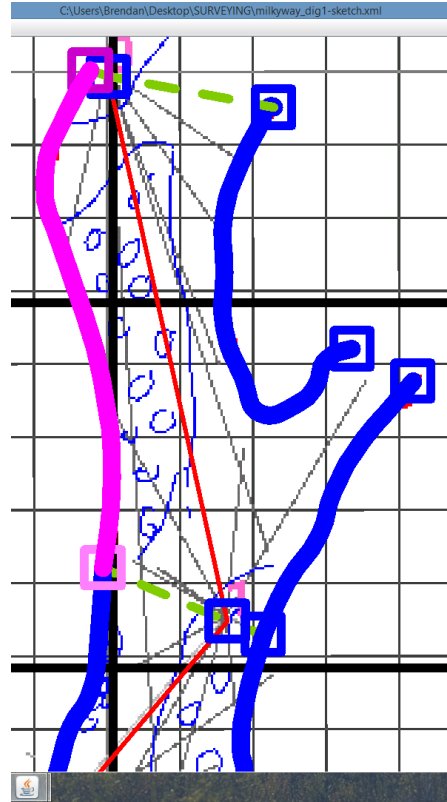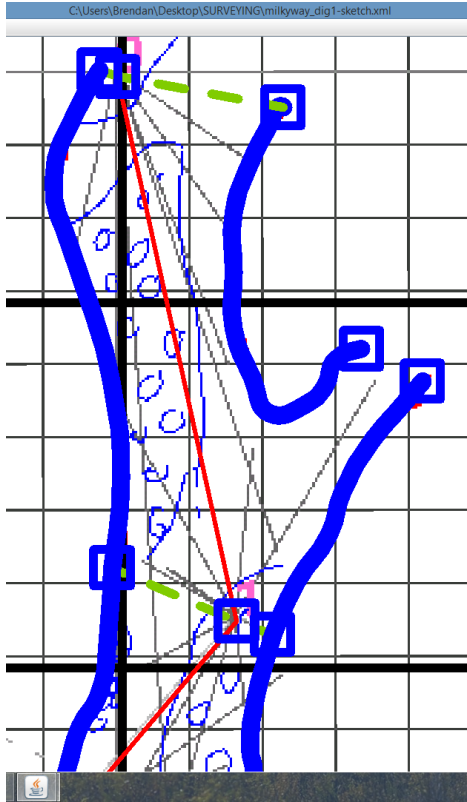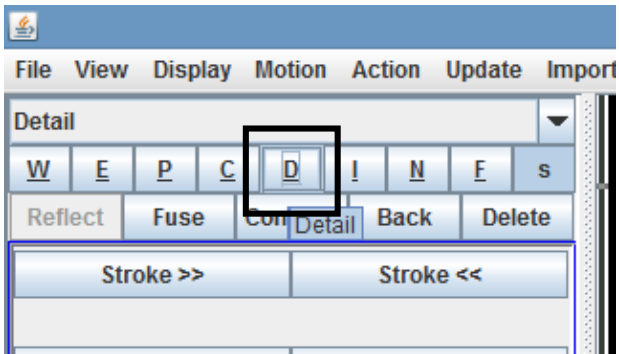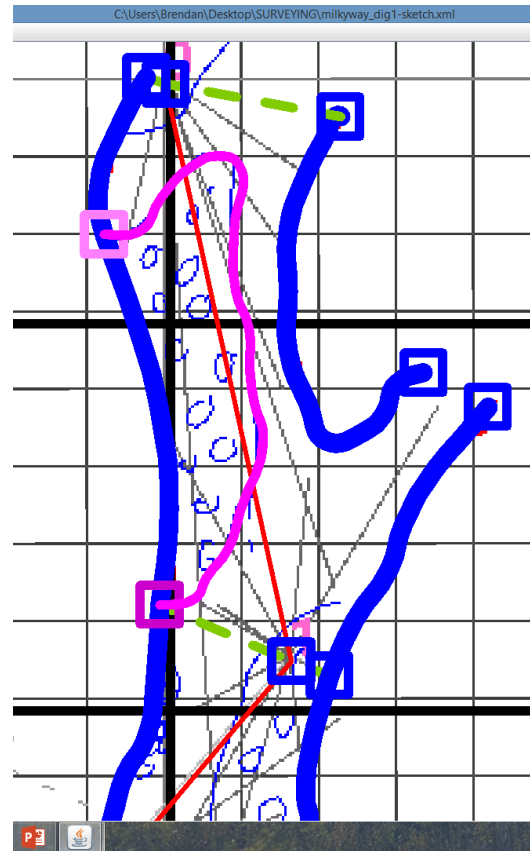

Right click the wall you want to insert a node into.

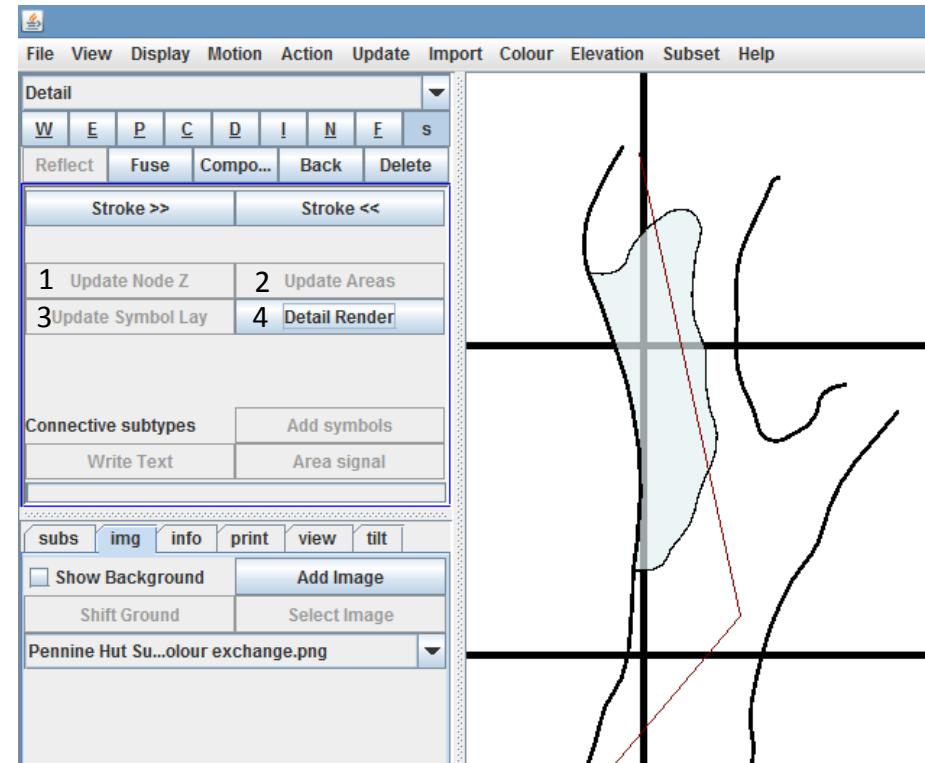Holding down Ctrl and Shift, left click where you would like to insert a node
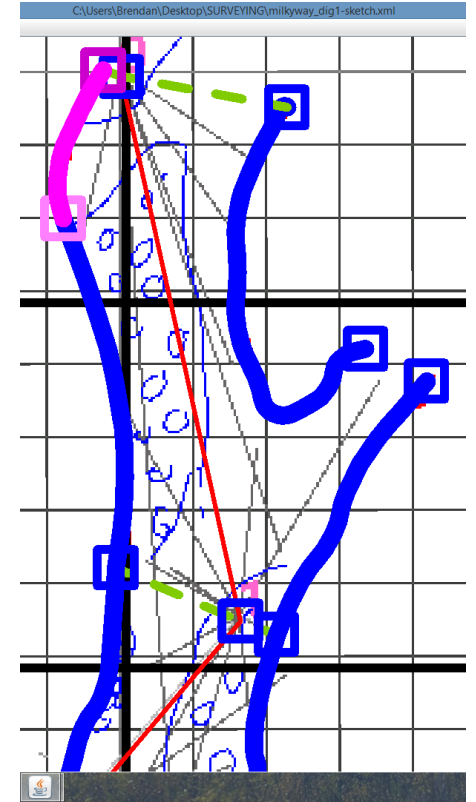
To check you have Inserted a node correctly, right click either side of the node, they should highlight seperatly

To draw in an area of detail in the passage, select the "detail line" option

Begin drawing in the area and finally connect it into another node on the wall to section it off
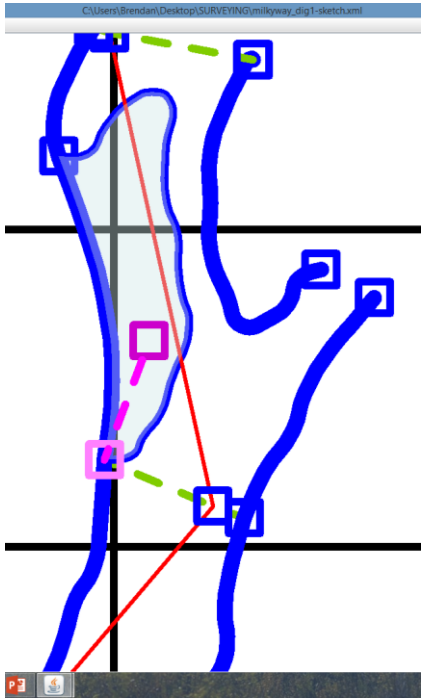

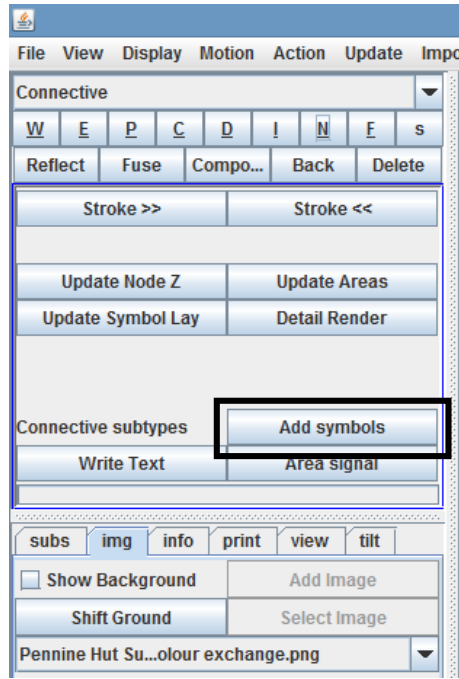In order to check you have sectioned off an area properly click:
1. Update Node Z
2. Update Areas
3. Update Symbol Lay
4. Detail Render

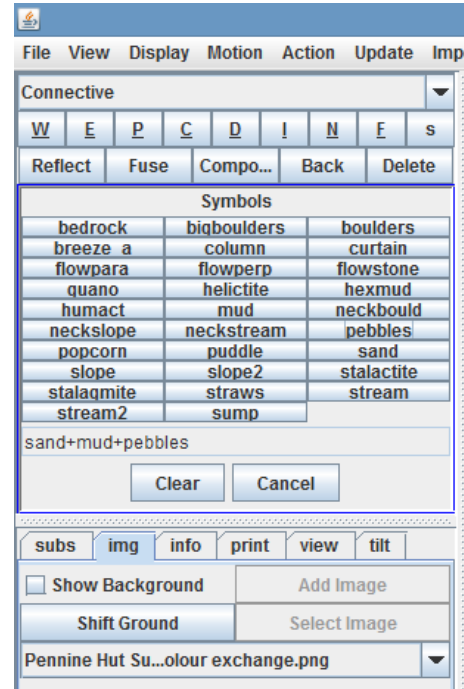In that order & the area will be sectioned off

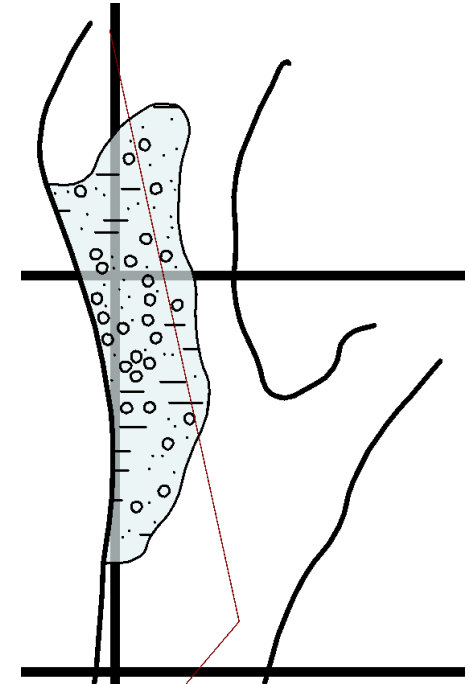It is possible to fill The area with features Such as sand, pebbles, Boulders ect.

1. Select a node connected to the area, and draw a **connective** line into the area

2. With the connective line selected, click "add symbols"

3. Select the things you would like to put in the area, you can pick more than one, here I have selected, sand, mud and pebbles.

4. Again right click off the sketch, and update: node, areas, symbol lay + detail render to check it looks right.

Do this for all the areas of your sketch, you can even draw in trenches/rivers, just remember all the details you draw need to be connected to a node on the wall.

Sometimes you may want to draw your own details in the cave passage/chamber, for example a huge boulder, it is possible To do this by drawing the boulder/feature with a "detail line" then connecting it to the rest of the passage with an "invisible line.
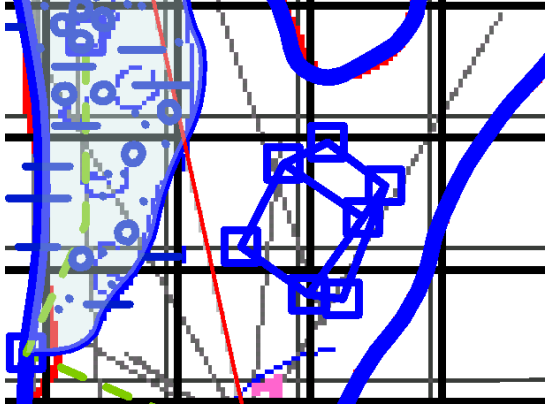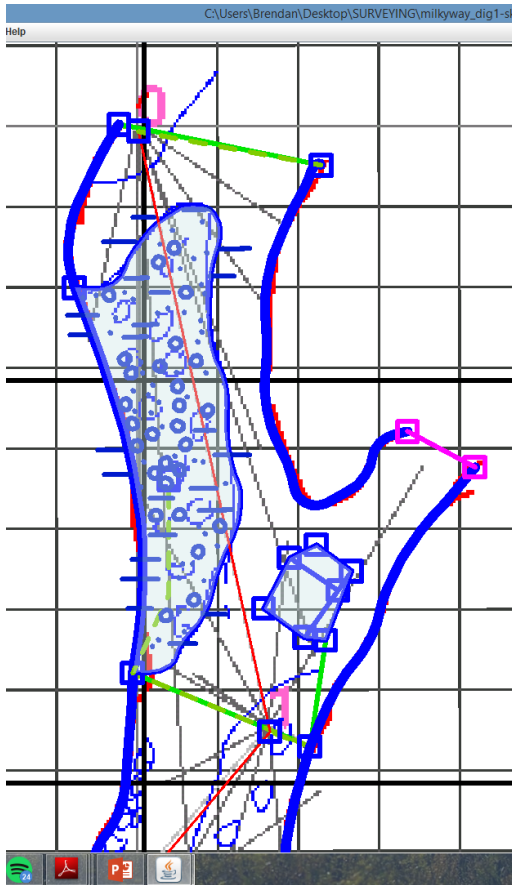

1. Draw in the feature, using a detail line, e.g. here the feature is a cube boulder thing
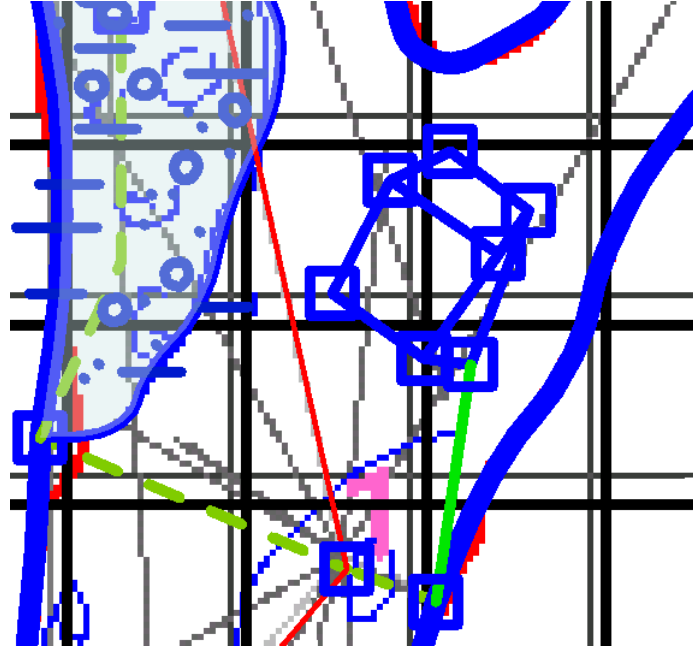
2. Connect the feature to the rest of the drawing with an "invisible line", otherwise it will look like this when you fill the rest of the passage in.
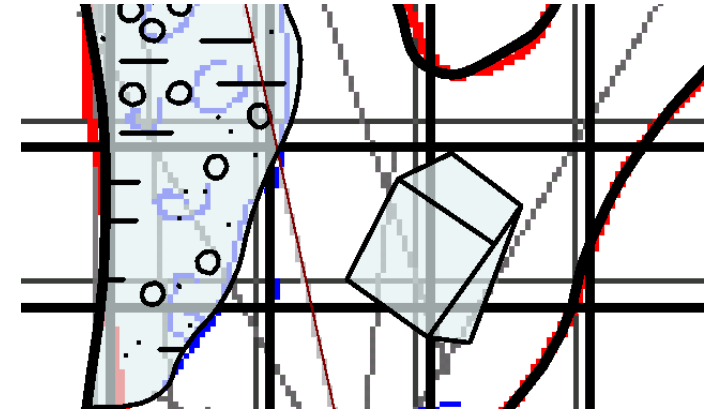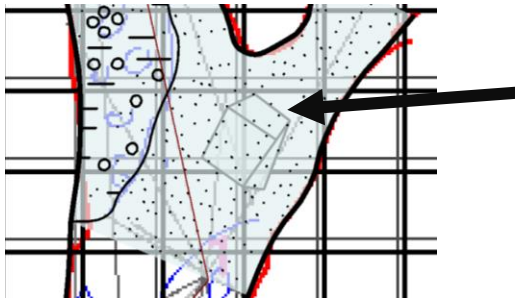
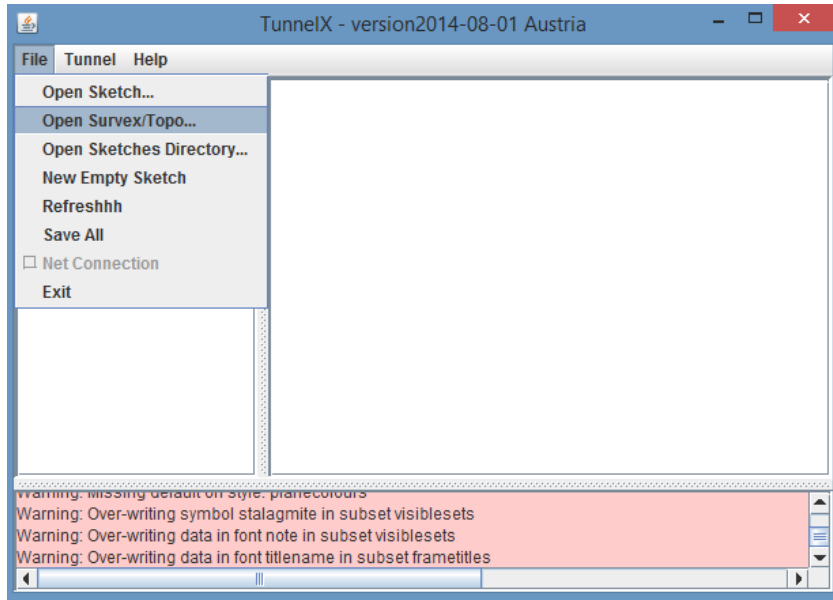3. Update nodes, areas, detail render ect. And it should look something like this.

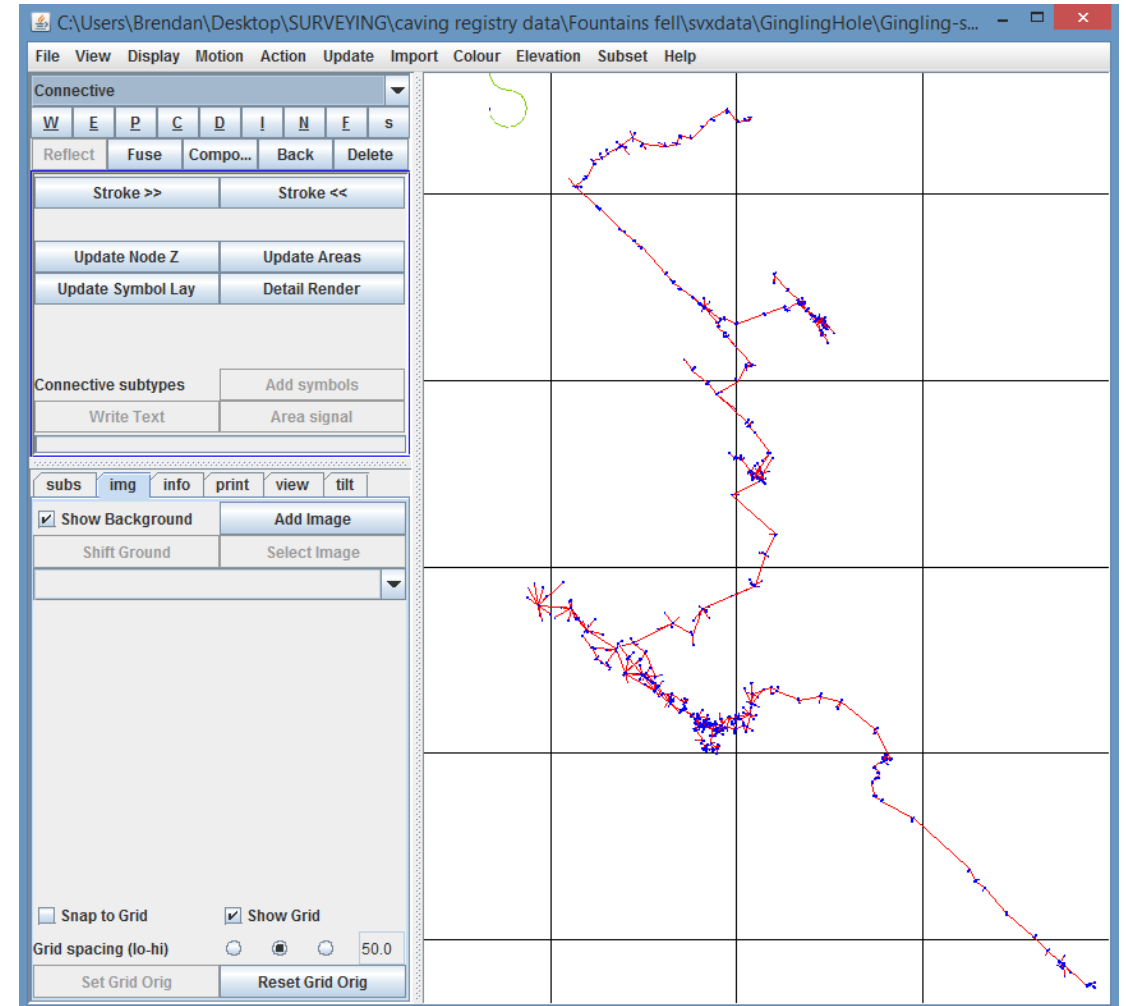1. Once your done creating all the areas/details, section off the ends of the cave.
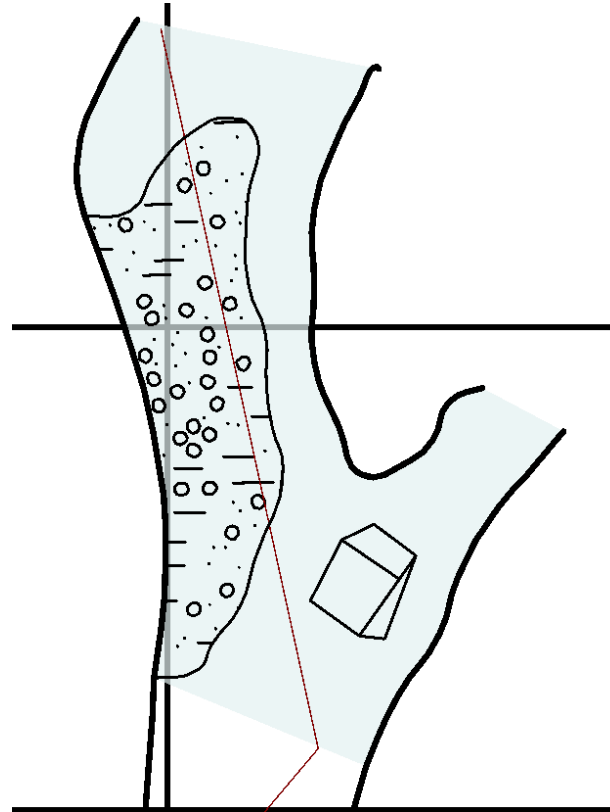
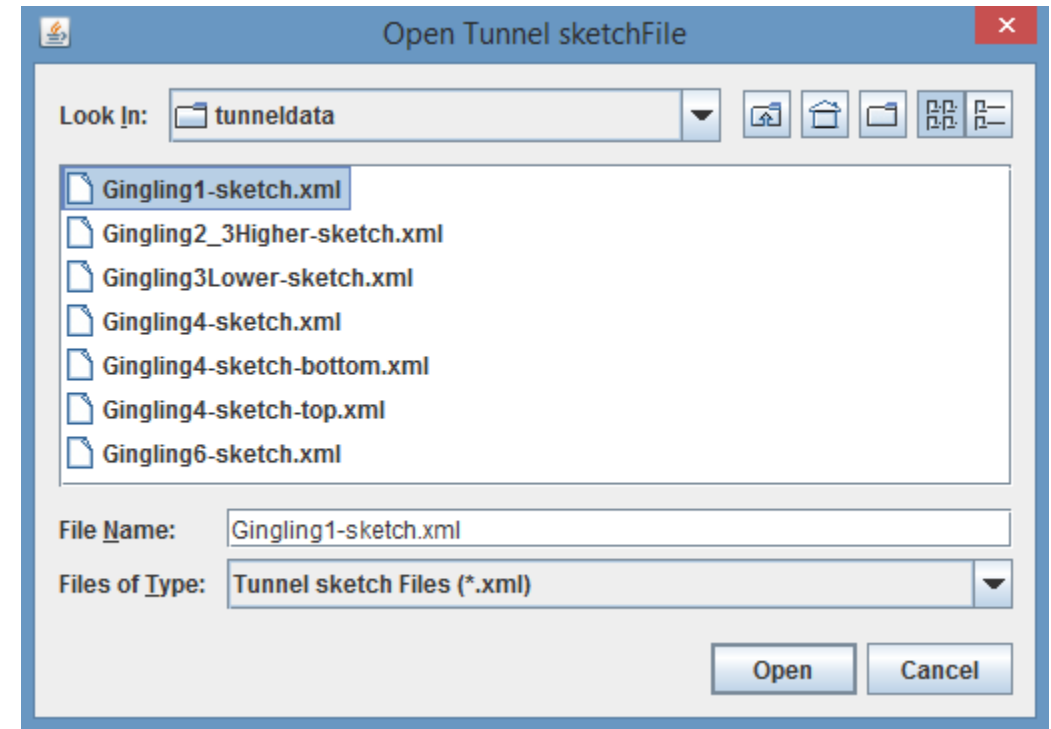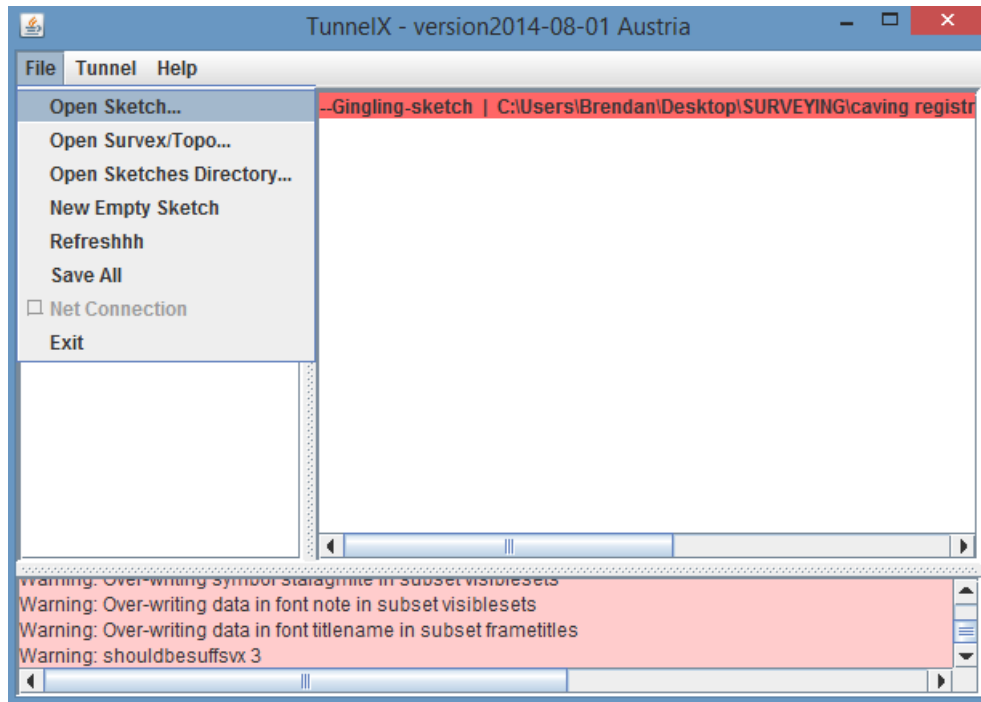1. This allows you to fill in the rest of the cave passage.

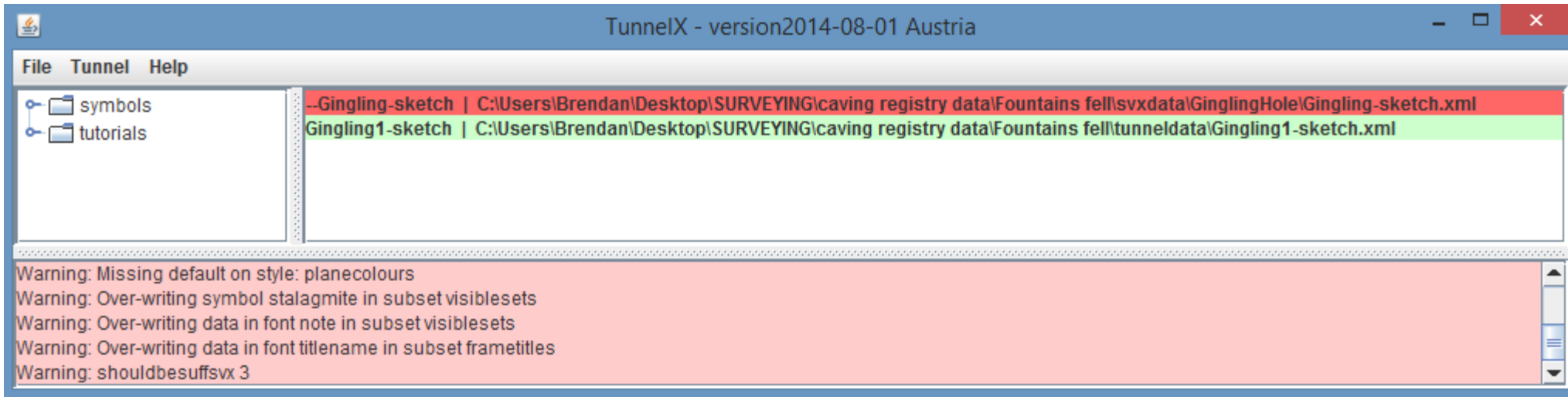# How to "stitch" cave passages together

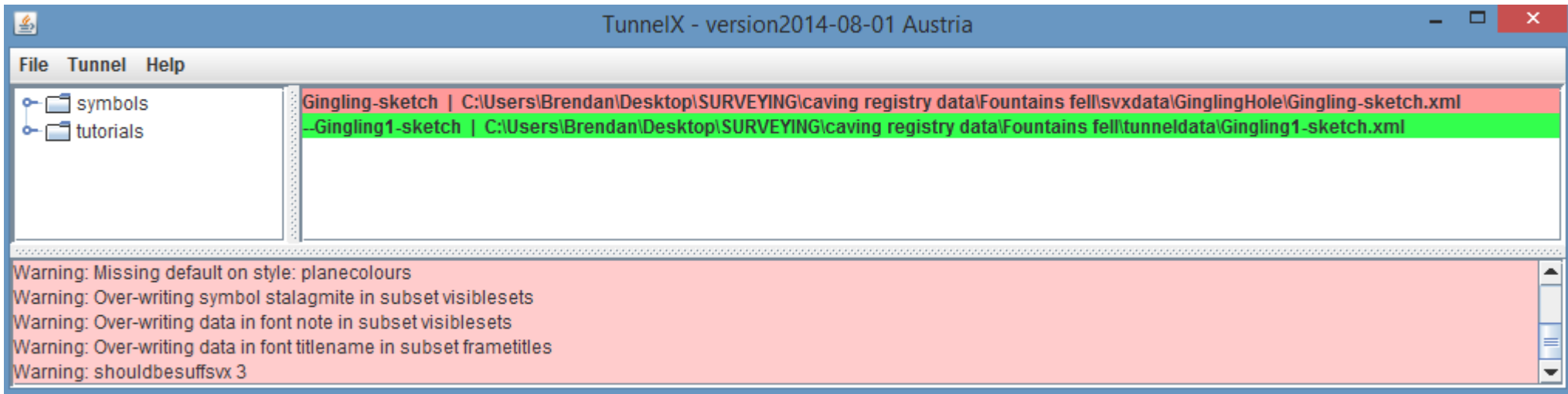Step 1: open the survex file of the entire cave/as much as has been mapped so far.

Step 2: open up the rest of the
sketches you have made for
that cave

3. Double click on the file for the master cave survex file here. And it'll show up in the main window.

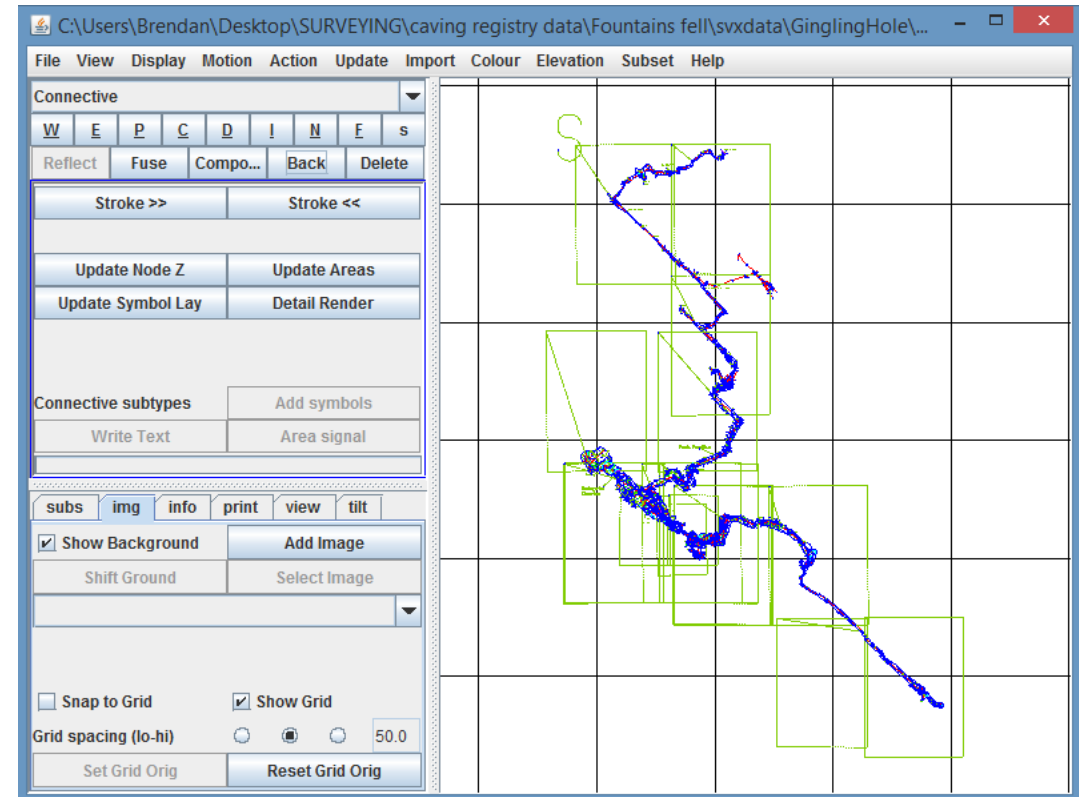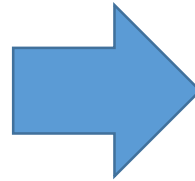4. Click once on the sketch file you want to import onto the main tunnel file.
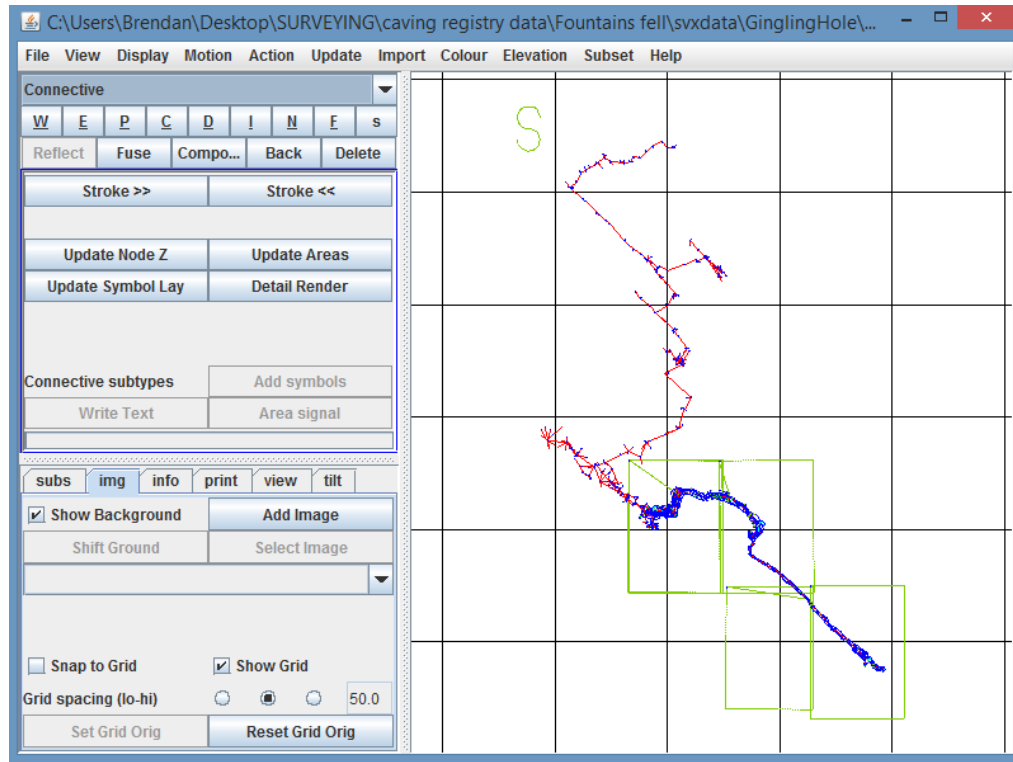
5. Click preview down sketch and it'll give you a preview of what the sketch will look like once it has been imported onto the master survex file.
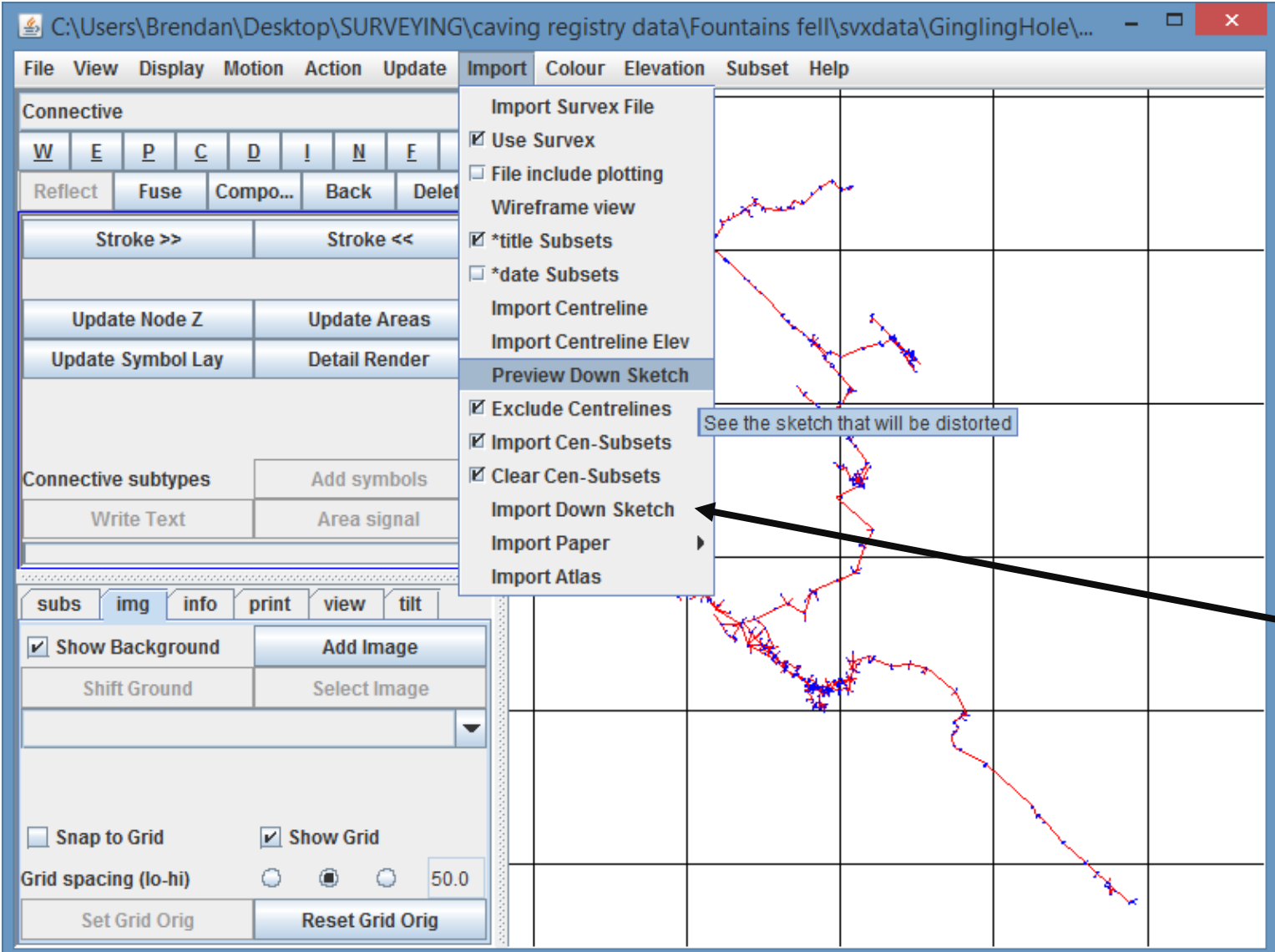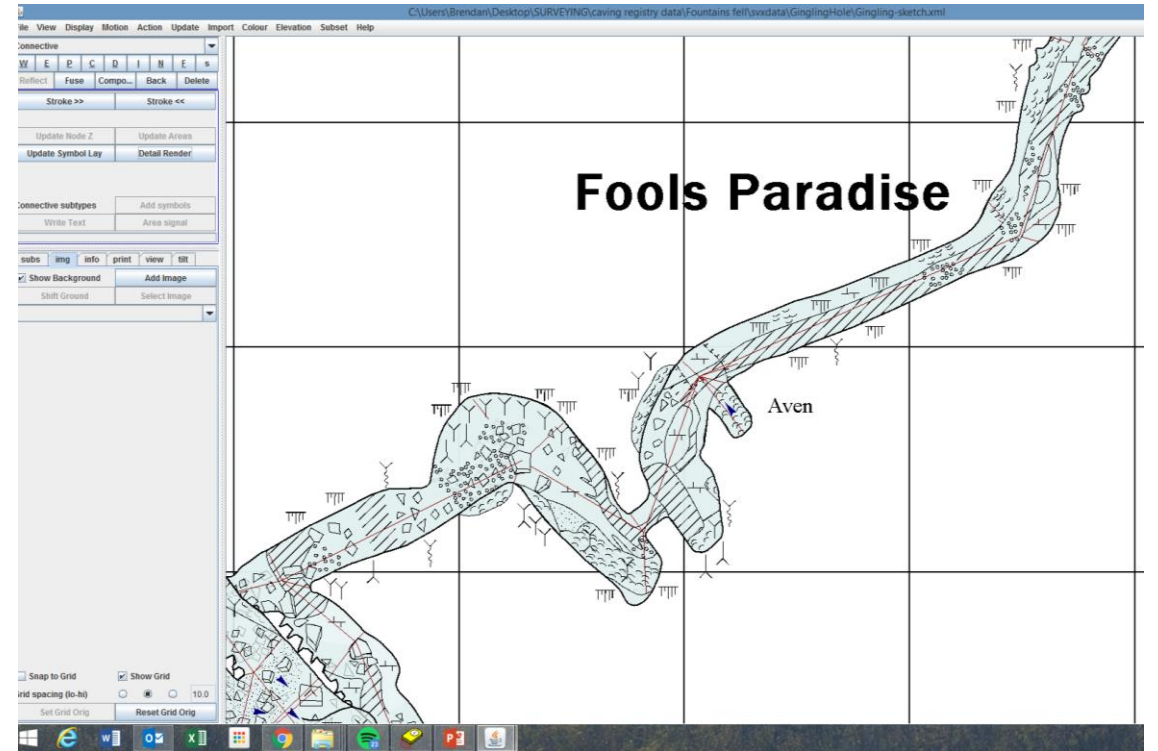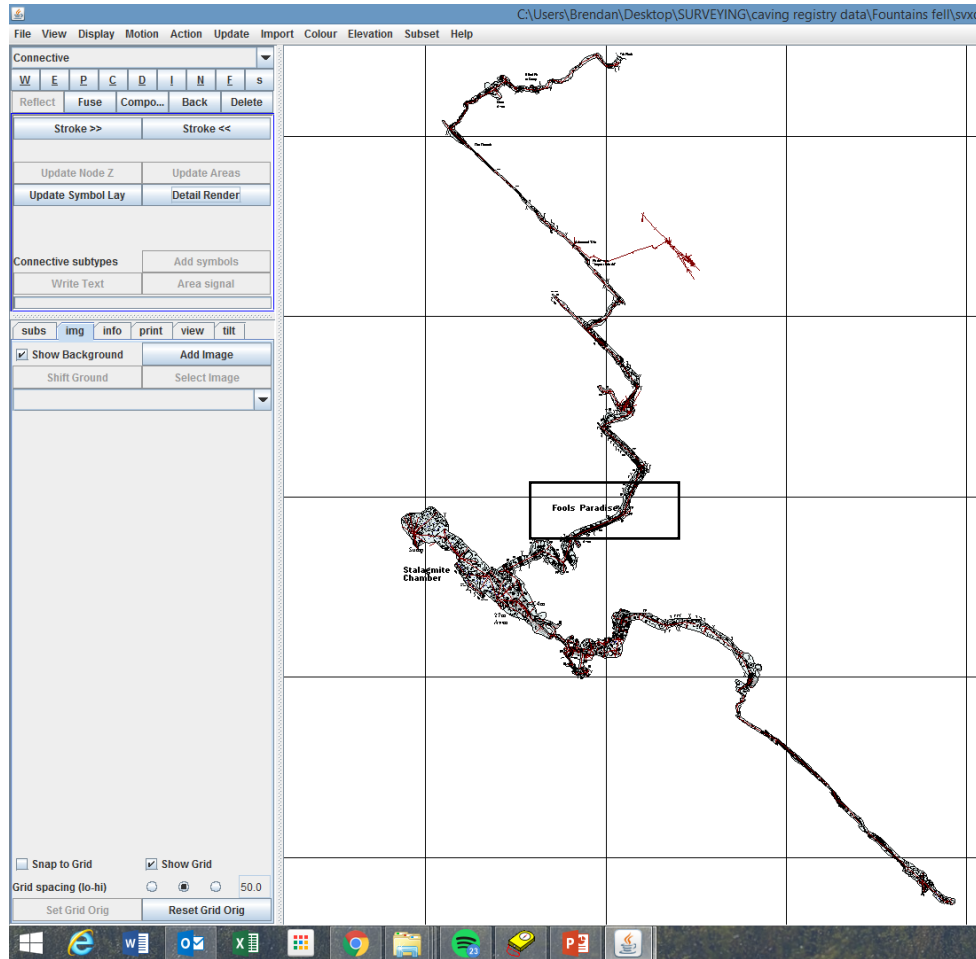

6. If you like the look of it Import the down sketch.

7. Continue this process for the rest of the cave…

8. Update...detail render and stuff and you'll end up with a file like this

Good Job ☺

9. Zoomed in it'll look pretty good.

10. You may need to do some botching/editing to get the "seams" in the separate files to fit together nicely.