Generating a landscape map from a scanned image.

The ability to generate landscape maps from scanned images was one of the prime aims when designing Landscape Explorer. The disk contains a sample scan of Mingulay in the Outer Hebrides, and we'll generate a map from this as an example.

1. <CAP1.BMP>

Open the map definition screen by choosing 'Define Map' from the 'Define Map' menu. Then choose 'New Map' to and alter the default settings to produce a map of the correct size for Mingulay - 6km wide by 6km long with grid points every 80 metres will be fine for this demonstration.

2. <CAP2.BMP>

Place the sample bitmap 'behind' the map canvas using the 'Load background bitmap' tool. You may have to resize the bitmap using the 'Set background bitmap magnification' tool - there's a scale at the bottom of the bitmap (you can move it around using the 'move bitmap' tool to see this), which will help you get the correct magnification - remember, the bitmap canvas represents an area of 6km square.

3. <CAP3.BMP>

Define some points using the Auto Contour trace tool. Just move the cursor over the contour and click - you will be prompted for the height. Here we've defined all the contours - and set the coast to height to 0.

4. <CAP4.BMP>

Fill in as much of the surrounding sea as possible to be at 0 height using 'set level heights' tool. We've also define some additional heights on the surrounding islets and along the beach with the 'spot height' and 'manual contour trace' tools - this will help the interpolation process.

5. <CAP5.BMP> <CAP6.BMP>

Use the interpolation tool to fill in all the undefined heights. We did this in the three passes - the top and bottom areas of the island using nearest neighbour analysis, followed by a single smoothing/trend analysis pass for the whole map to ensure that any missed points were defined. Note that nearest neighbour analysis may take a few minutes.

6. <CAP7.BMP>

With maps of islands such as this one it's a good idea to use the magnify tool to check around the coastline after interpolation to make sure that the sea follows the coast as we want it too. This step is much less necessary for maps that contain only land as the precise position of the boundary is less important.

7. <CAP8.BMP>

Finally we add the terrains. The sea can be added quite quickly using the 'Flood with water' tool. You'll probably want to define a beach and some cliffs too with the 'set terrain' tool. You can also set terrains with the map magnified. Once your happy save the map as a Landscape Explorer .lem file.

8. <CAP9.BMP>

Iconify the 'Define Map' screen and select 'View Projection' from the 'View Map' menu. Select your saved file, and once the map has loaded you are presented with the View Parameters dialog. We've adjusted the defaults to view the landscape as it might be seen in very early morning in high summer (the sun rises almost in the north at these latitudes) looking over the main bay of the island.

9. <CAP10.BMP>

And here it is. The purple areas show where the main settlement used to be sheltering below the hills and back from the beach. You can change the view parameters to generate alternate views by selecting 'View Parameters' from the 'View Map' menu.