**Graphic Skills Portal**

**Technique Handouts**

# 1 ANALYSING

**Creating a tissue analysis map using Illustrator**

URBAN GRAPHICS SKILLS

# What is a tissue analysis map?

It is a technique that overlays a known and understood scale plan or aerial photograph of existing buildings, lots, blocks and street patterns onto a vacant site as a rapid means of geenrating design options. Those plans, aerial photographs or maps are often referred to as an '*urban tissue*'.

The tissue analysis is useful to identify changes and historic evolution in urban morphology.

To understand the concept of suburban tissue, it is first necessary to understand the concept of **urban morphology**, or the study of the physical form of cities over time. According to Carmona, there are essentially two main types of urban form: 'traditional' and 'modernist', with the former consisting of urban blocks that define and enclose space, and the latter consisting of free-standing 'pavillion' buildings in landscape settings.

There are several key elements: land uses, building structures, plot and and street patterns. Together, these four elements combine to form patterns with similar characteristics and congruencies, patterns known as 'urban tissues'.
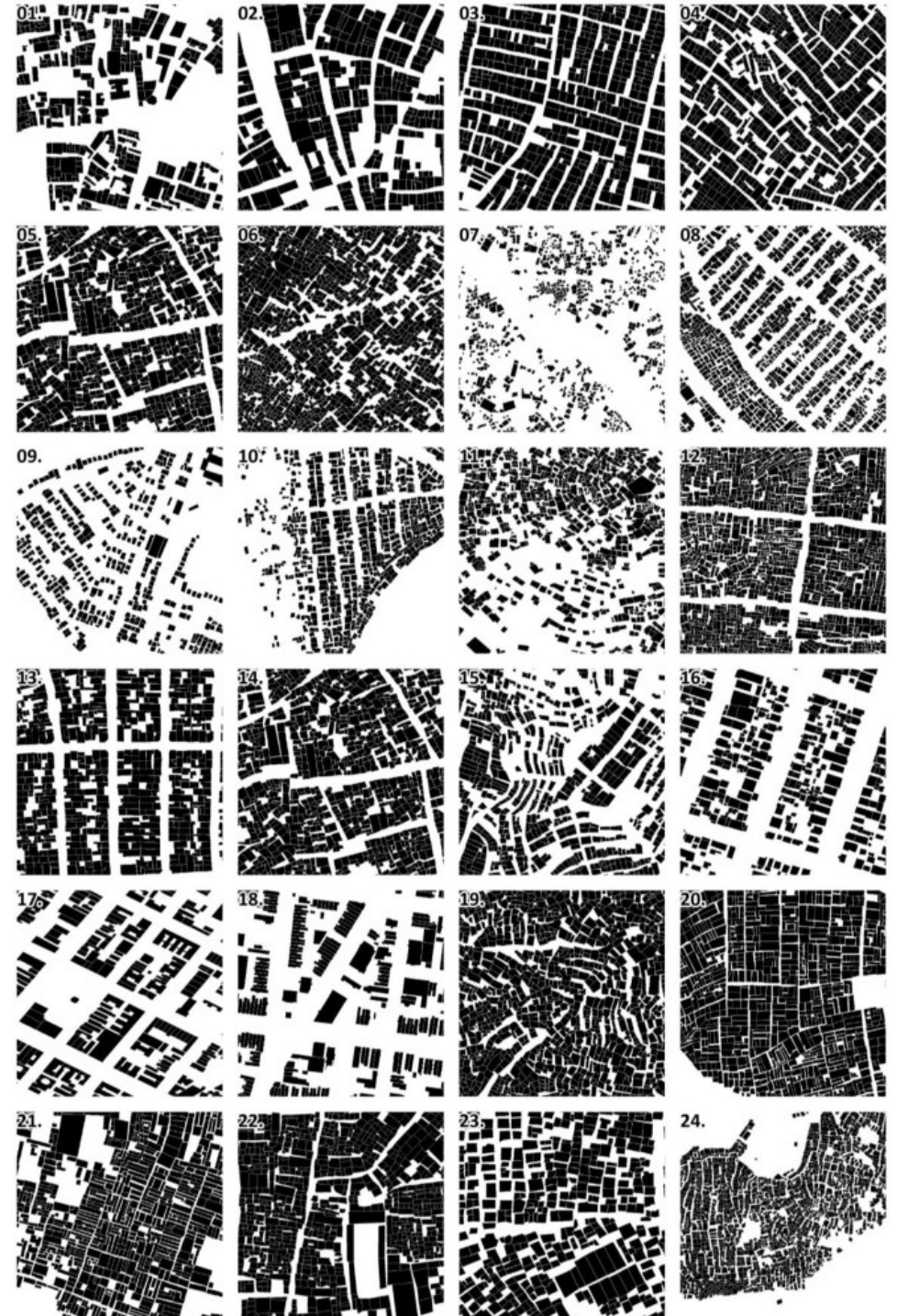
# Main 'tissues' recognised in urban areas

Overall, when the notion of tissues is applied to the city, it can be thought of as the 'superimposition' of several structures acting at different scales, but which appears as a system with linkages in each part of the city.

Several scholars discussed the tissue analysis (Kropf, 1996; Carmona, 2014, 2021; Scheer 2017; Caniggia, 2017). Among those, Brenda Scheer identifies tissues that change over time at dfferent paces and at different scales:

- **Static tissues**: form a consistent patter and are characterised by relatively small lots that are about the same size. They also contain a major structure directly related to the tissue.

- **Elastic tissues:** are the least stable because of the general lack of order due to the variety of lot sizes and lack of a clear street network.

- **Campus tissues:** such as residential complex, are characterised by a large tract of land owned by a single entity. There tends to be more than one building and a lack of connectivity to surrounding tissues, aside from the limited number of entrances.

Moreover, **town centres** have specific urban tissues, which mainly refer to their historic configuration and evolution.
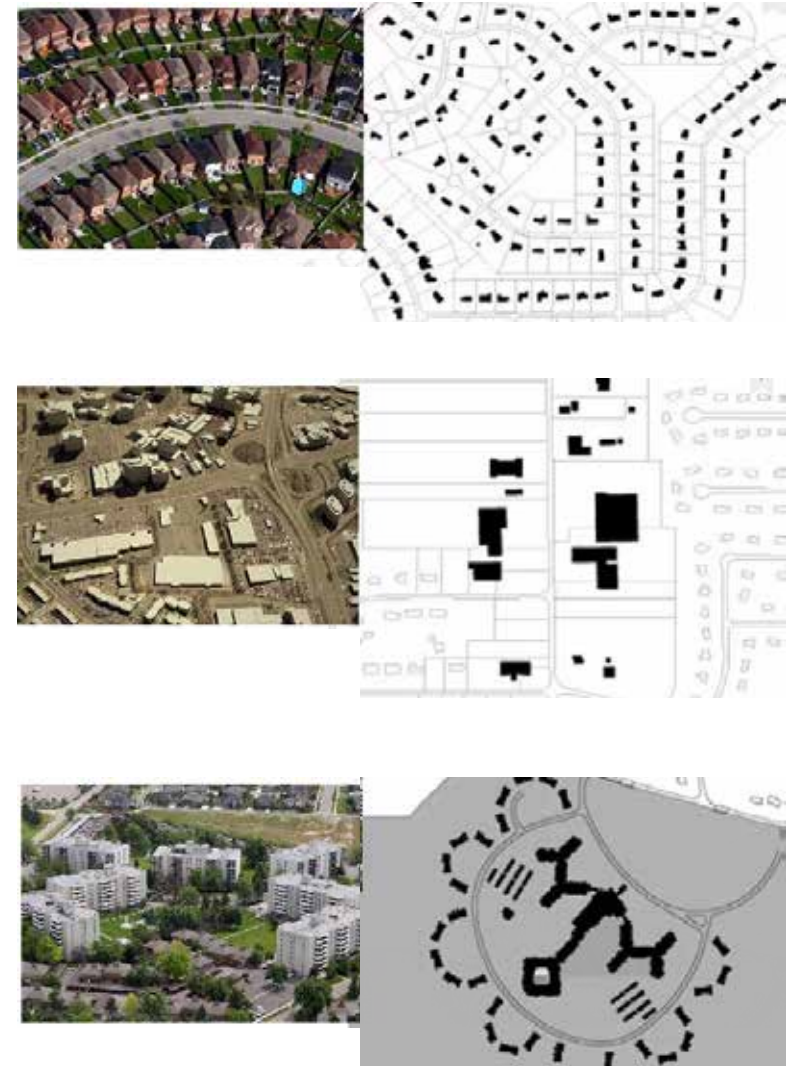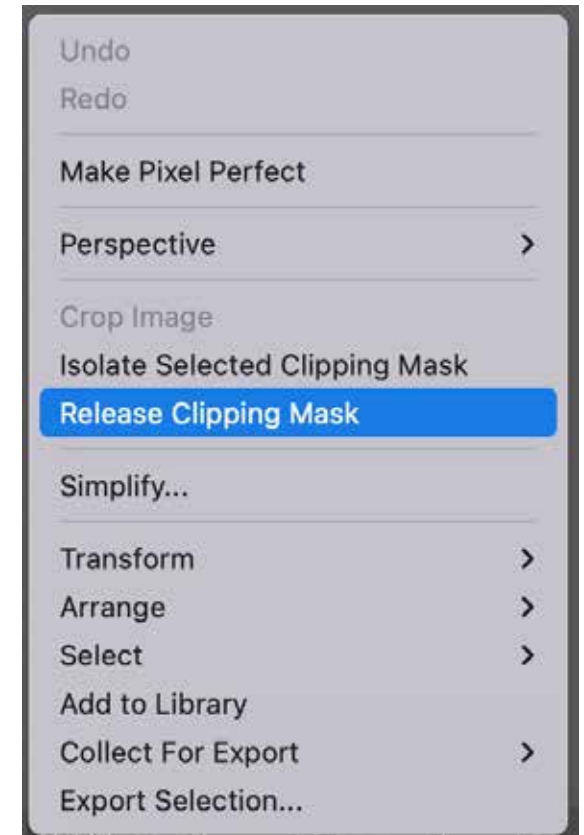
**Open a digimap map and make it editable in Illustrator by realising clipping masks**

Very often a PDF image (or any kind of vector-based image) is composed of different layers and/or overlapped images. If you want to modify/erase/separate one of those layers, firstly you should unlock it by releasing any clipping mask.  To do this:

Once you open a PDF image (or any kind of vector-based image) in Illustrator, you should left-click on the element you want to release (it seems that nothing is selected by this point), such as a text or a line, then right-click on it and press **'releasing clipping mask'.**

| Undo |  |
| Redo |  |
| Make Pixel Perfect |  |
| Perspective | > |
| Crop Image |  |
| Isolate Selected Clipping Mask |  |
| Release Clipping Mask |  |
| Simplify... |  |
| Transform | > |
| Arrange | > |
| Select | > |
| Add to Library |  |
| Collect For Export | > |
| Export Selection... |  |

**Ai**

Once you release the first clipping mask (right-click), then you should deselect (or click on the grey background). When everything is deselected, then you should select with the cursor something on the map that has not been released. Once it is selected, then you right-click on it and again 'release clipping mask'.

If everything is released, by right-clicking you will not find anymore the tool 'release clipping mask'.
PS.  you can do this only i) before modifying the image in PSD and ii) if it originally is a PDF image (or any kind of vector-based image).
A step-by-step tutorial is also available in the  *BSP Graphic Skills Portal – Adobe Illustrator handout*

PPS.  sometimes you need to **'ungroup'** the image before starting realising clipping masks. To do this, right-click on the image and press 'ungroup', then click on the grey background and, when everything is deselected, start with the 'release clipping mask' process.

When you are in this situation, it means you still have to realise some clipping mask. You can understand this if:

- The green areas' colour (green) appears only inside the boundary of the frame – it means you should realise the gardens/parks, etc.

- The buildings' colour (orange) appears only inside the boundary of the frame – it means you should realise the building layer.

- The streets' colour (grey) appears only inside the boundary of the frame – it means you should realise the streets/plots, etc. layer.

- Etc.

**Ai** When everything is realised, you will see that objects are spanned outside of the paper artboard, as well as, you will be able to select everything.
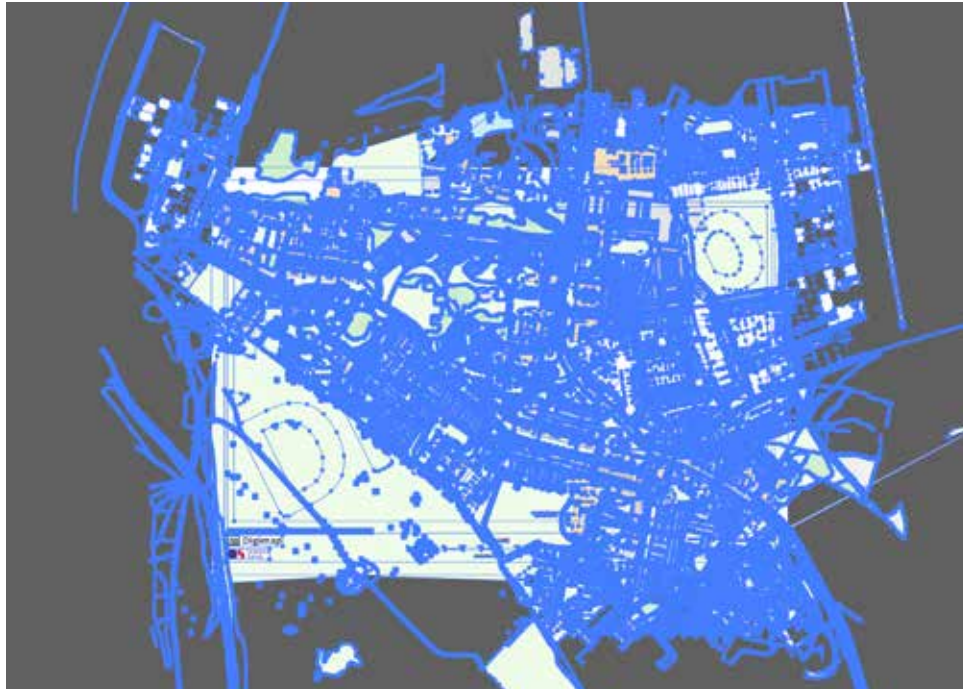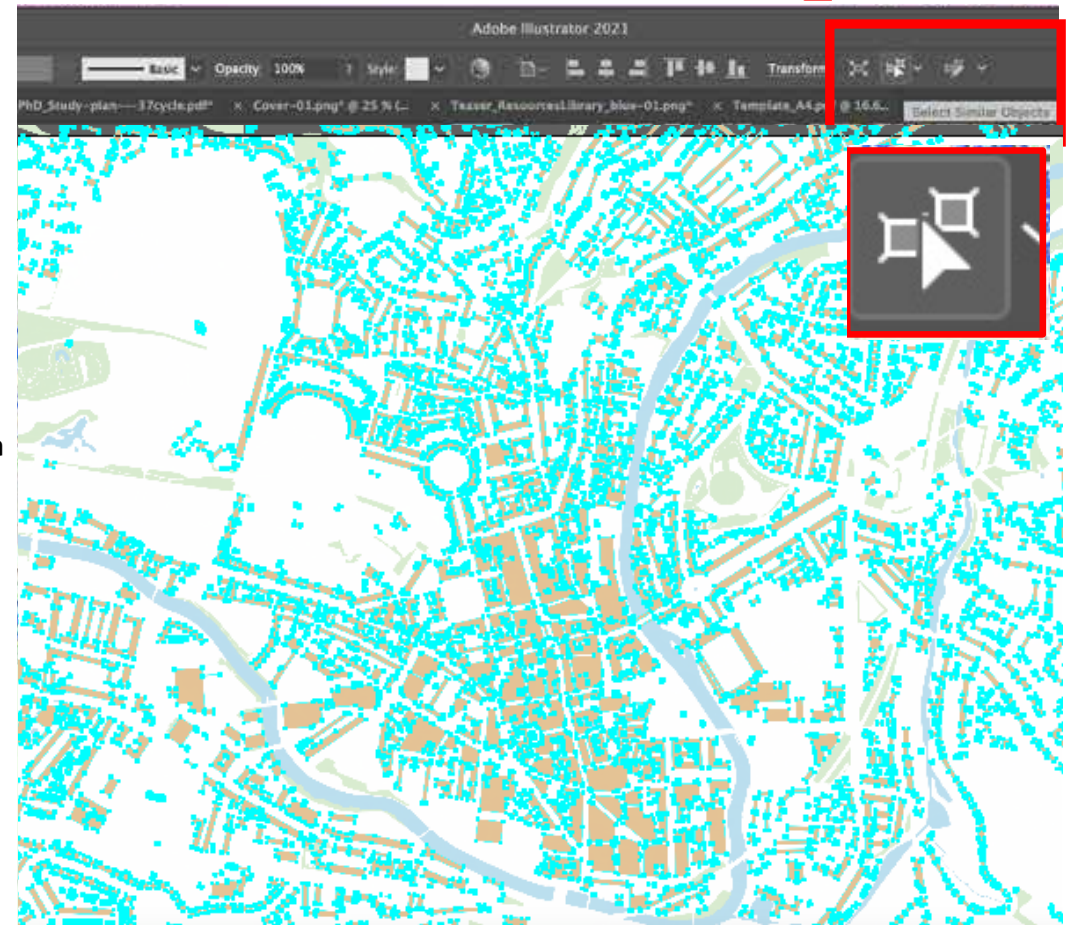
# Select similar objects

Now, you may want to separate different layers via selecting similar objects:

1.  Click once on the fill colour of a building (NB. you can check that the selection is right when the fill colour is orange in the left-side bar).

2.  Choose **Window** > **Select similar objects**, and choose a preset from the **Preset** drop-down menu.
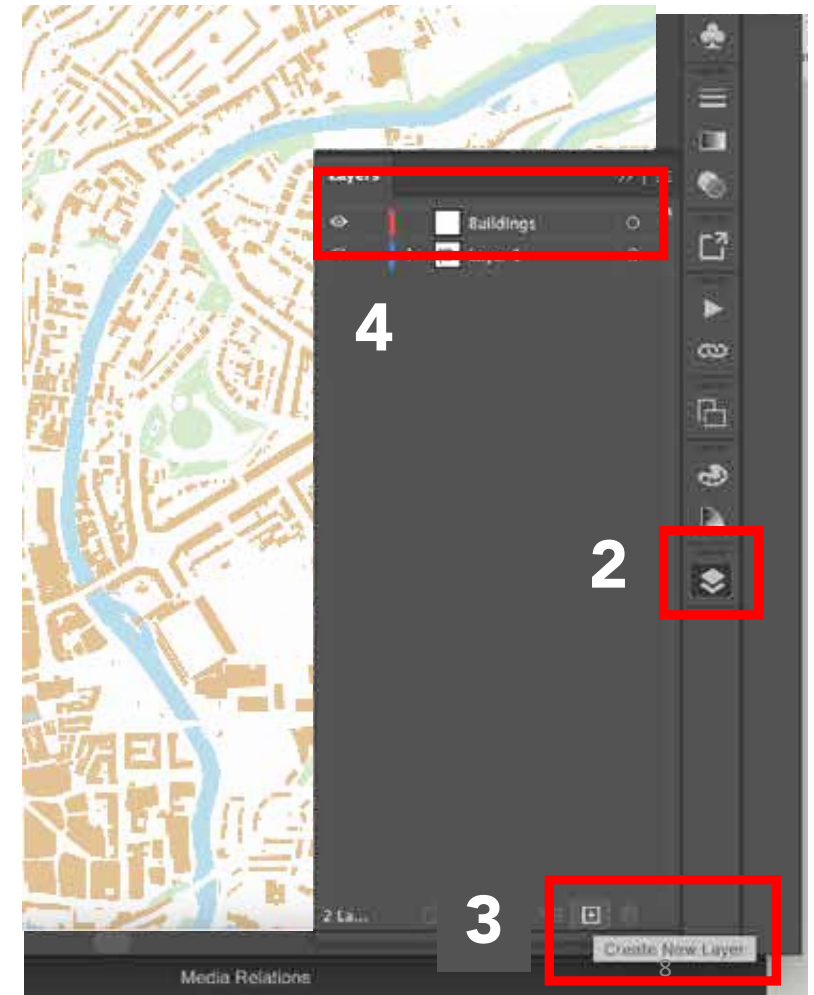
**1**



**2**

## Create a separate layer

Now, all the buildings are selected. To 'separate' them from the other objects, and move them to a different layer:

1. Edit > Cut
2. Before pasting, go on the right-sidebar > open layers
3. On the bottom, click on '+' to create a new layer
4. Rename it as 'Buildings'

## Create a separate layer

Once you have created the layer 'Building':

1. Select the new layer created
2. Edit > paste in place
3. Now, all the buildings on your map are on a separate layer. To change colour, select all the object on that layer at once by clicking the **small dot** close to the layer's name.
4. Change colours to all the selected buildings by using the left-sidebar: double-click on the fill colour > pick the black colour > ok

![Ai](Adobe Illustrator icon)
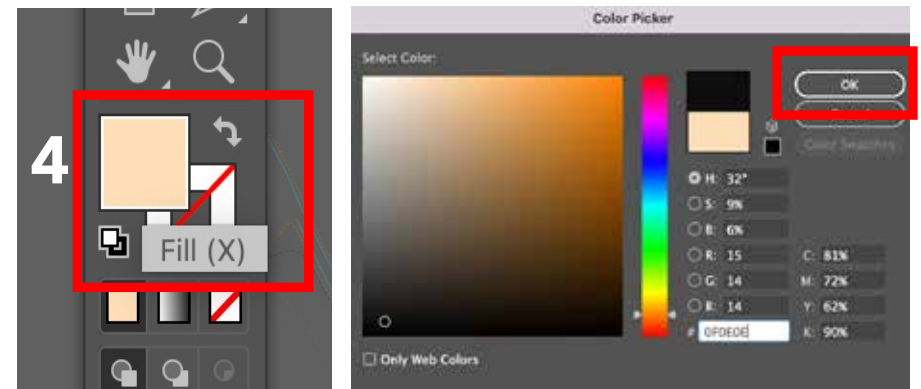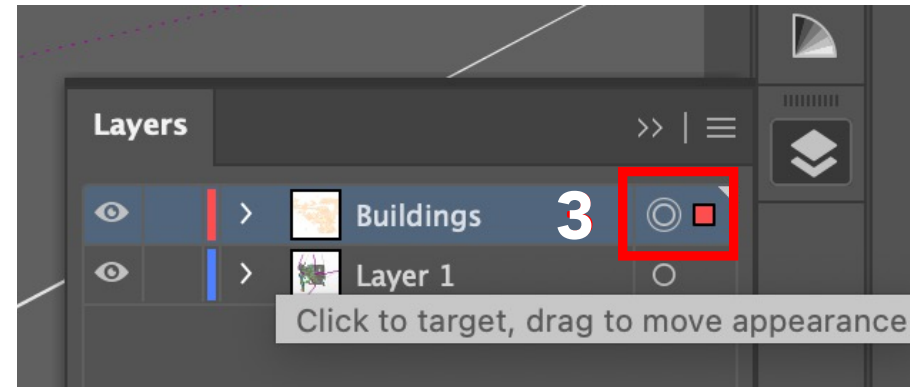
## Create a separate layer

All the buildings are now black. To have them as a Figure-ground map, switch off the other layer(s)

1. Open the layers window > toggles visibility

## Setting the background of your map

Once you have the map you want to use as a background, you have to duplicate the layer 'Buildings', that will be used to masks some areas of the map. Now you have two identical layers, that you can rename as '*Buildings foreground*' and '*Buildings background*'.

To the latter one can be add opacity up to 30% (see image)
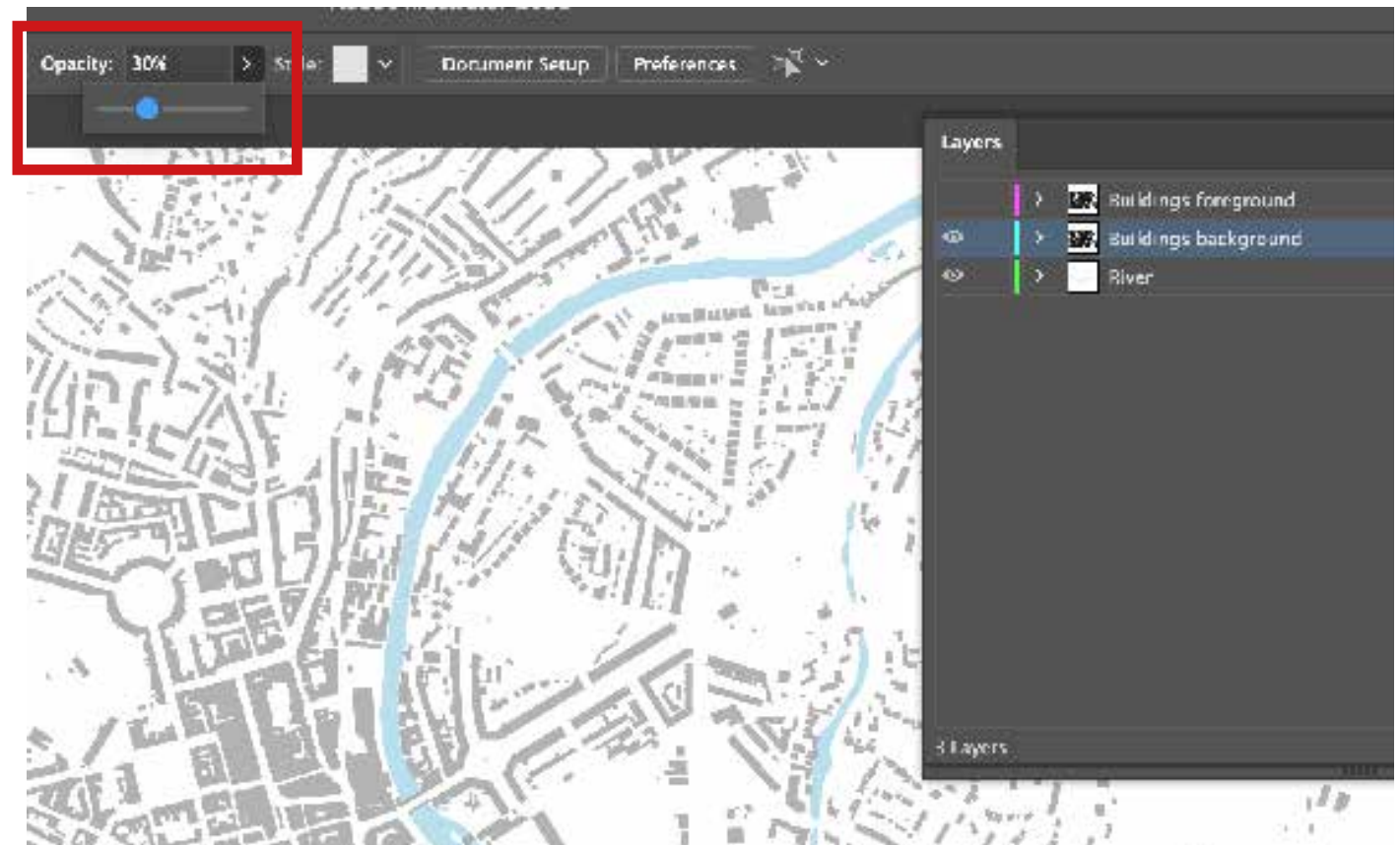
## Setting the foreground zooms

Now, you should identify different tissue patterns that you may want to investigate further on your analysis. Those mainly relate to the historic development of the city and buildings function.

1. First, you can switch off '*Buildings background*' which will be use later on.

2. On '*Buildings foreground*', design some rectangles based on the tissues you may want to highlight – note that those rectangles should be on top of the black buildings as they are on the same layer.

3. By pressing Shift, [▫] select all the rectanges you just created in one selection > right-click > Make **Compound Path**

4. Now, you can select everything on the layer '*Buildings foreground*' (means black buildings below and Compound Path of rectangles on top) > right-click > make **Clipping Mask**

5. Switch on '*Buildings background*' (still with opacity at 30% - see previous page).

6. Note. you calso assign numbers to each zoom
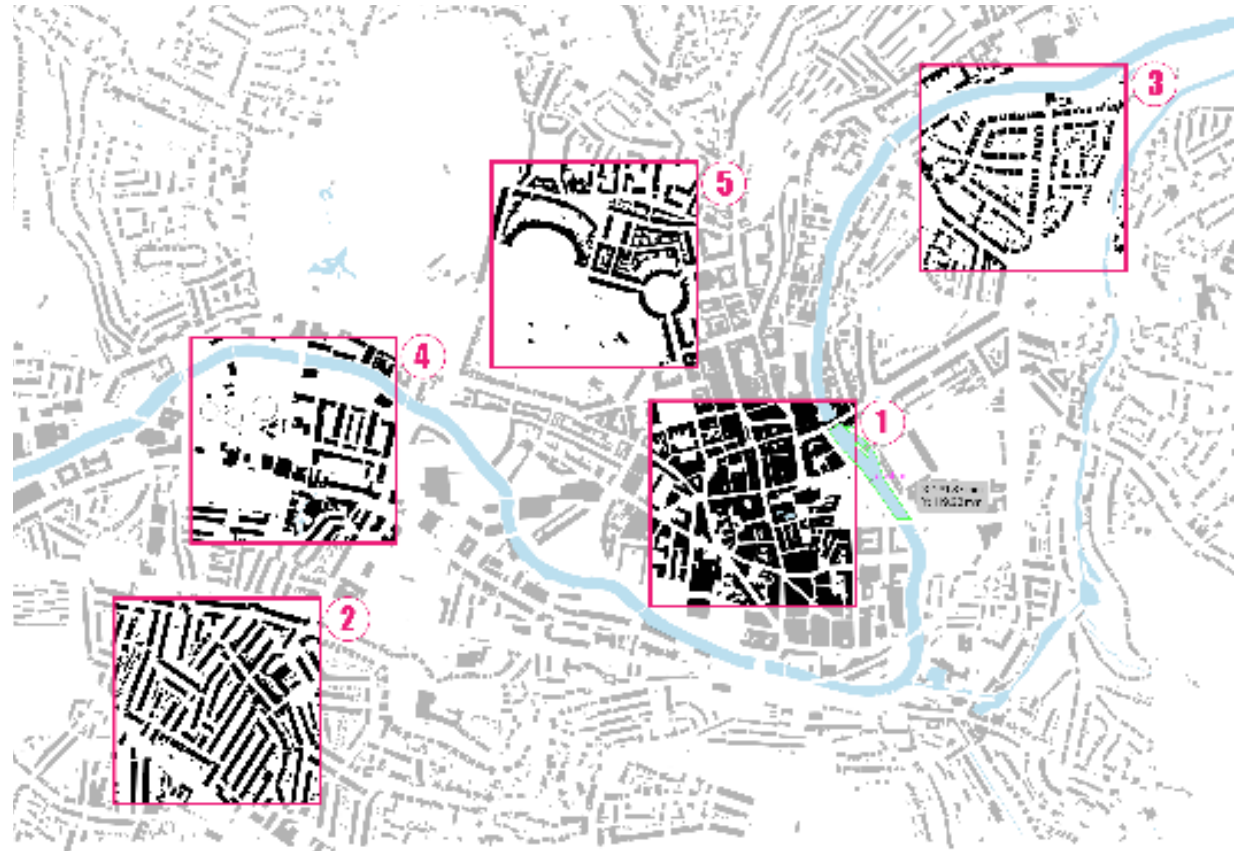
# Add a description to each identified tissue

*Now, you just identified the tissues for your analysis!*

The analysis at this point could incude some text or even diagram of road structure for each rectangle.

Remember that the analysis should be readible and consistent, so help yourself with **numbers and colors** to help the reader navigating the process.

1. Create a new layer that you can call '*Label*' and put it on top of the layer list. This will be for adding descriptions and useful information.

2. Using this layer, create a bottom white strip using the Rectangle Toom (M).

3. Now, you should add each identified zoom + assigned number + title + text. However, this process may result a bit complex due to the fact that all the rectangles are now linked in one mask... So, you should create another mask for each of them! (see the next page).
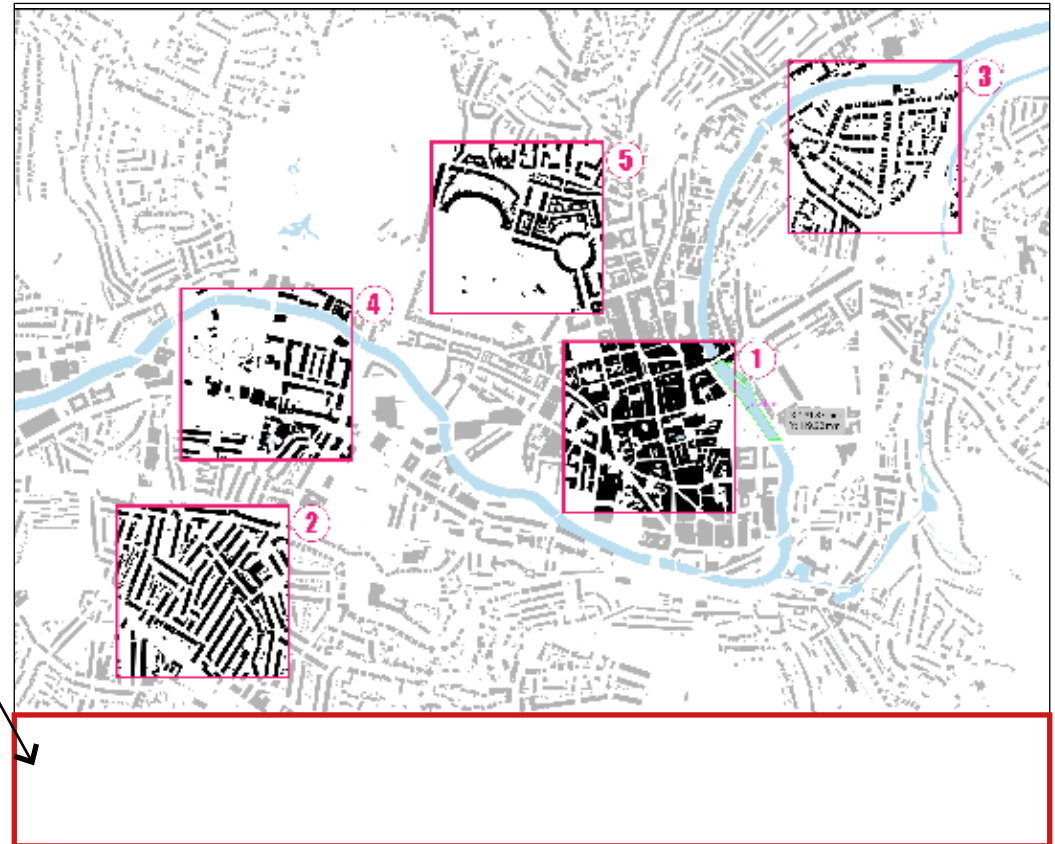
## Add a description to each identified tissue

4. Select the identified tissues > Copy

5. Select the '*Label*' layer > Paste
   *Note: for your convenience, you can now switch off all the other layers.*

6. Now you have a copy of identified tissues, that for convenience I name after '*copied tissues*'. With the Rectangle Toom (M), create ONE rectangle on top of the first tissue.

7. Select both the '*copied tissues*' and the rectangle you just created > right-click > make **Clipping Mask**

8. Now, you have only one tissue that you can easily move on the strip you created in step 2. You can also add title and text accordingly.

**REPEAT THIS PROCESS (steps 4-8) for each identified tissue.**

**6**

**Ai**
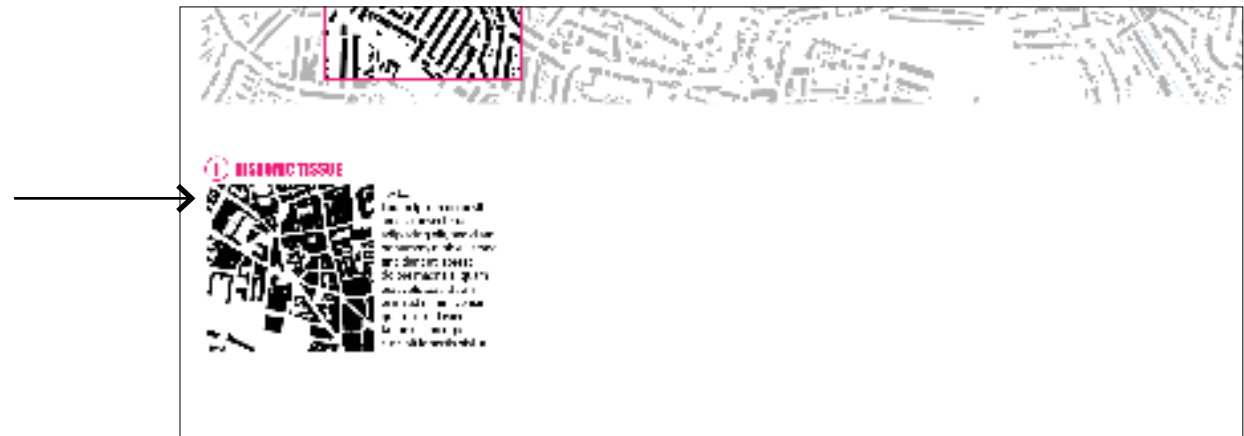
# Finalise your analysis for details

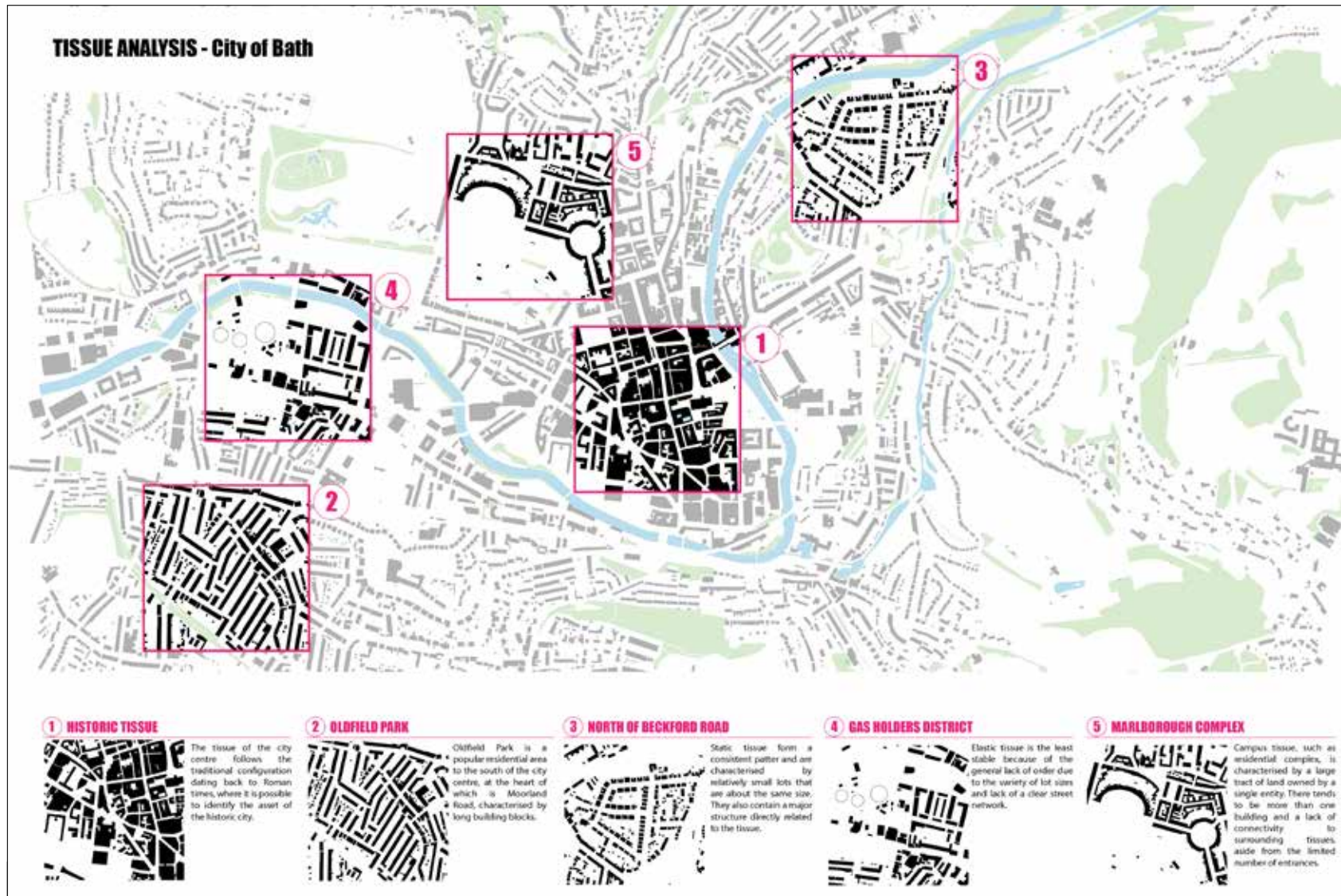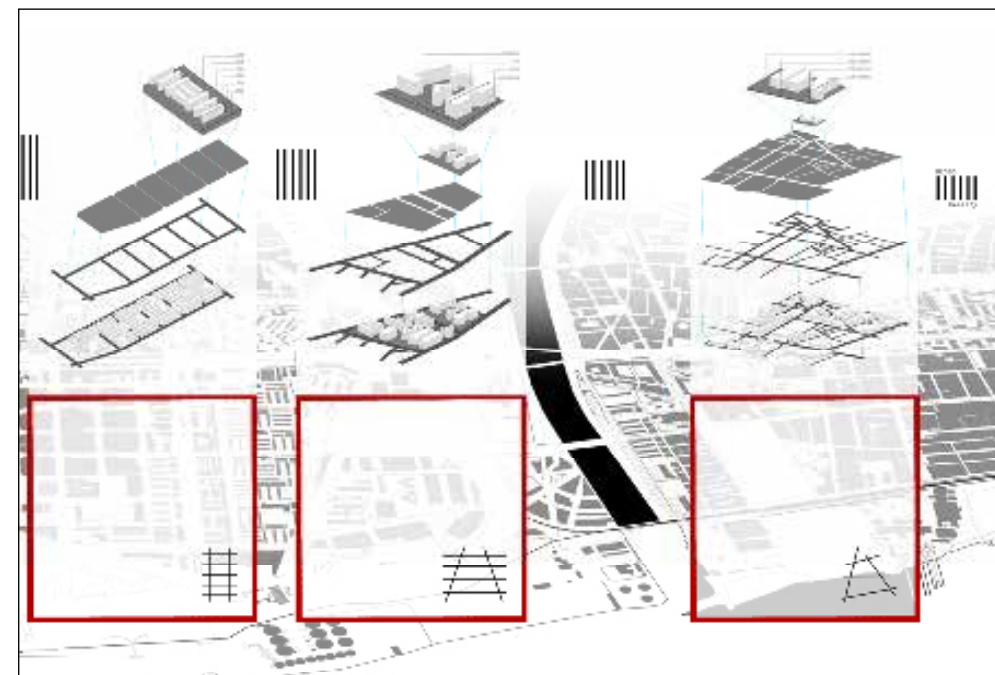Lastly, you can adjust your analysis by adding a title, scale bar, or adjust dimension.



TISSUE ANALYSIS - City of Bath

**① HISTORIC TISSUE**

The tissue of the city centre follows the traditional configuration dating back to Roman times, where it is possible to identify the asset of the historic city.

**② OLDFIELD PARK**

Oldfield Park is a popular residential area to the south of the city centre, at the heart of which is Moorland Road, characterised by long building blocks.

**③ NORTH OF BECKFORD ROAD**

Static tissue form a consistent patter and are characterised by relatively small lots that are about the same size. They also contain a major structure directly related to the tissue.

**④ GAS HOLDERS DISTRICT**

Elastic tissue is the least stable because of the general lack of order due to the variety of lot sizes and lack of a clear street network.

**⑤ MARLBOROUGH COMPLEX**

Campus tissue, such as residential complex, is characterised by a large tract of land owned by a single entity. There tends to be more than one building and a lack of connectivity to surrounding tissues, aside from the limited number of entrances.

![Ai]

This was just an example on how you can produce a tissue analysis, but you can explore more complex ways and styles for it. Here some examples:



**Poplar Neighborhood**

❶ Newer development has regular structure

❸ Denser industrial area in the 1960s with smaller structures

❷ Bigger buildings in 2020s where smaller residential was in 1960s

❹ More residential blocks in the 1960s in denser area

■ 1960s ■ 2020s



Legend:

AREAS:
- historical tissue to maintain
- historical tissue to restore
- renovation urban tissue
- transformation urban tissue
- existing urban tissue

HISTORICAL URBAN TISSUE

RENOVATION URBAN TISSUE

TRANSFORMATION URBAN TISSUE

HISTORICAL URBAN TISSUE

RENOVATION URBAN TISSUE