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MANCHESTER | URBAN DESIGN | LAB

MUD-Lab Toolkit
Adobe Photoshop: Practical Guide

This handout is a practical guide to Photoshop. It will take you through the main operations we use in Photoshop to manipulate and adjust maps and urban scenes. The handout assumes that you have already familiarized yourself with Photoshop using the Master planning with Photoshop toolkit handout; so it is not going to explain in details the tools and commands. However, this guide shows the steps you are going to regularly do to change your image mode, add trees, people figures, drop shadows, change colours, change the sky background, add textures, and place and merge your proposed master-plan on the existing base map.

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The MUD-Lab Toolkit

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'Manchester Urban Design LAB (2020) '***MUD-Lab Toolkit: Adobe Ai Practical Guide***' accessible at www.seed.manchester.ac.uk/mudlab

Introduction

In this handout you are going to learn how to modify your graphics using Adobe Photoshop. We will start with modifying a map downloaded from Digimap by changing building colours, focusing on a specific area, and adding grass texture to the green spaces. We will then modify buildings' shape and we will add some details. The second exercise will be merging a masterplan with its surrounding context (a Google Earth map). In the second section, we are going to design a sharp, appealing, site plan and create a night scene version of it. . You are going to use these operations frequently in you urban design practice, so use this handout to familiarize yourself with the steps needed. Repeat them until you master them. Please note that there are numerous ways of doing the operations in this handout, and what is included is only one way of doing them.

Recap: Essential commands and tips before starting

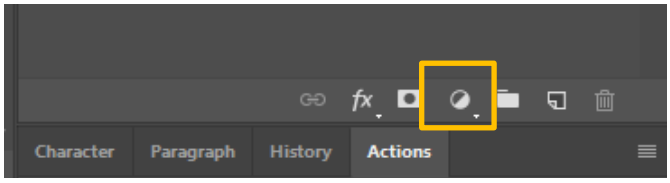
We are going to mention some essential commands and tips before starting. Make sure you master these:

Commands that you will be using frequently:

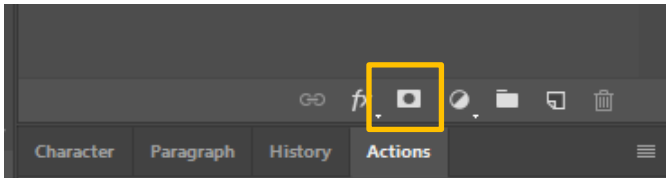
- **Ctrl+Z** to undo once. **Alt+Ctrl+Z** to undo multiple times.
- **Ctrl+T** to activate the Transform tool **(Essential)**
- **Ctrl+D** to de-select
- **Ctrl+Shit+I** to invert selection **(Essential)**
- **Ctrl+Shift+N** to create a new layer
- **Ctrl+J** to duplicate layer
- **Ctrl+G** to create layer group
- **Ctrl+B** to adjust colour balance
- **Ctrl+U** to adjust Hue/Saturation
- **Ctrl+R** to activate the ruler
- **Hold Alt** and use the **mouse wheel** to zoom in and out
- **Hold Alt** to copy selected objects
- **Hold Space** to maneuver
- **Hold Alt** to subtract from a selection, **Hold Shift** to add to selection
- **B** for the Brush tool
- **G** for the Bucket/Gradient tool
- **S** to activate the Clone Stamp/ **Alt** to select the area to be cloned
- **R** to rotate the whole canvas (use the Transform Tool to rotate a specific object).
- **T** to activate the Type tool. You will need it to modify a text.
- **I** to activate the Eye Dropper tool
- **W** to activate the Magic Wand
- **O** to activate the Dodge/Burn tools

Essential tips:

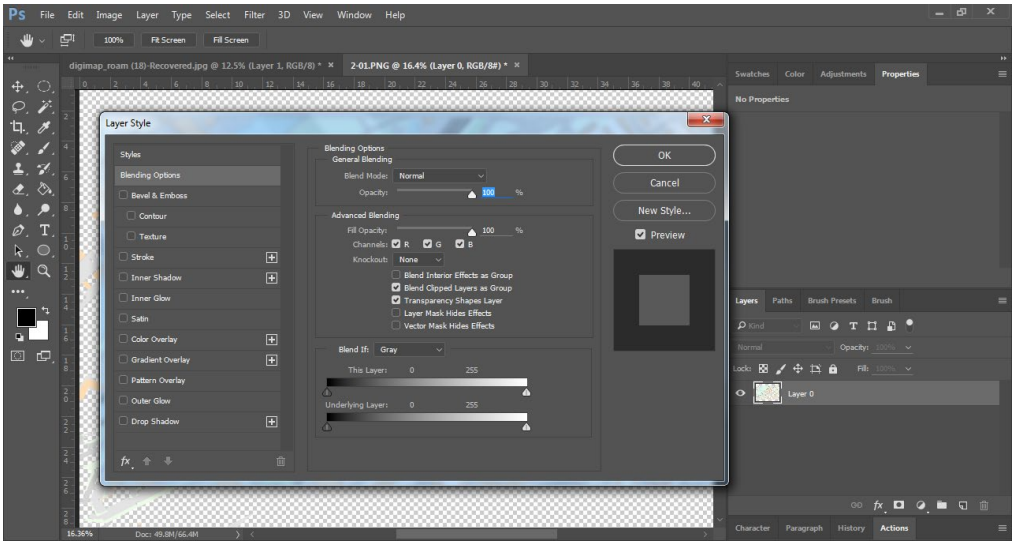
- The Transform Tool (**Ctrl+T**) is one of the most frequently used tools in Ps. If you want to change the scale or to activate an object, select it and hit **Ctrl+T**. While the Transform Tool is active (**Ctrl+T**), hold control and drag the corners of the frame to freely transform it. Hold **Shift** to maintain proportions.
- Holding **Ctrl** and clicking on the layer thumbnail will select all the objects included in that layer **(Essential)**
- While drawing an object, click **Alt** to start it from its center. Hold **Shift** to maintain proportions.
- While the Brush tool (B) is activated, a **right click** will open its options for a quick adjustment of the brush type and size.
- Ps is raster based software (pixel based). If you scaled down an object, and then scaled it up, the object will lose resolution and might be destructed drastically. A **Smart Object** in Ps will maintain resolution if you scaled it down and then up. You can transform any layer to a smart object by: right click on the layer/Convert to a smart object. Keep in mind that this will enlarge your file size considerably.
- Rather than applying an adjustment on a layer directly (such as Hue/Saturation adjustment), use the **Adjustment Layer** to add a controllable effect on a layer without destroying it permanently. Simply delete the adjustment layer to remove the effect.



- **Clipping Masks** are essential tools to alter a layer without destroying it. It is basically a tool to temporarily cover and reveal parts of the layer. When you create a layer mask you are basically covering some areas and revealing others on that layer (and so showing the layer below it). You can use the Brush tool to control what is hidden and what is revealed. You need to use either Black colour (to hide areas), or white colour (to reveal areas). You can disable the mask and enable it whenever you want: right click on the Mask thumbnail/Disable. You will use it a lot to apply textures and to merge your master plan with it surrounding context such as a Google Earth base map. Refer to the *Ps* Handout to learn more about it.



- The Layer Style Panel is extremely important and handy. Double click on a layer thumbnail to show the Layer Style. You can add textures, glow, drop shadows…etc. using the options on the left.



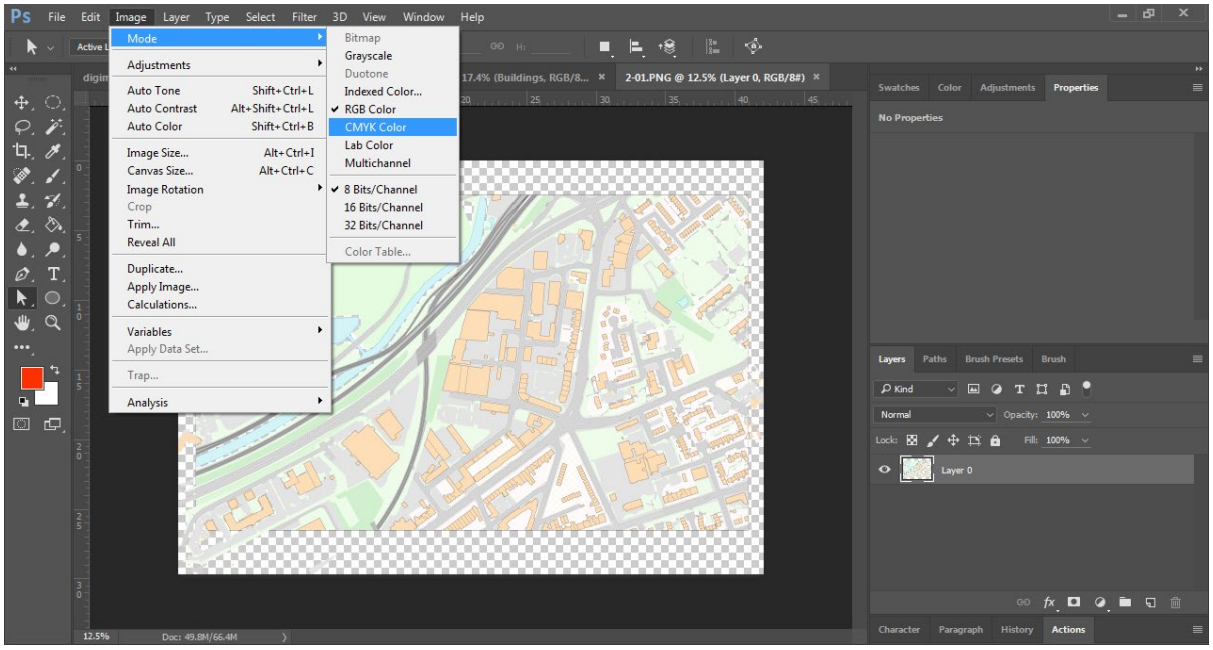
- An applied Layer Style (such as Pattern Overlay) is not editable unless the Layer is Rasterized. Right click on the Layer (not the thumbnail)/**Rasterize.**
- Selecting elements might be difficult and time consuming. You can always **save your selection** to get back to it later: Select/save selection
- Hold **Ctrl + Right click** on an object to see the layer the object is located in
- The **Clone Stamp** tool (**S**) is extremely useful to hide imperfections and to copy objects. You will find yourself using it a lot to clone textures, especially when making the grass seamless, when copying some random bushes and trees, clouds…etc. You will need to hit S and then hold Alt and click once on the area you want to be cloned, release Alt and hold mouse left button on the area you want to be filled with the cloned pixels and the cloning will start.
- Always make sure you are on the correct layer when using the **Clone Stamp**, especially when you are cloning from a layer to another layer in which you need to changing layers.
- The Dodge/Burn tools (O) are useful for darkening and lighting areas. They are especially useful when you want to darken /lighten areas on the grass/water texture.
- The Layer Blending options control how a layer is blending with the rest of the layers. They are very useful in adding texture or effect to a surface. Consider playing around with them to see how useful they could be.
- Finally, always make sure you are on the correct layer!

Changing an image Mode: From RGB to CMYK

3.1. How to do it

Your final design could be used as an "on screen only" material or as a printed material. It is important to note that the image colour mode for printed materials is different from the one on screen. If your final output is intended to be used on screen only then the mode should be RGB (Red, Green, Black). However, if you intend to print your final design, then the image colour mode should be CMYK (Cayenne, Magenta, Yellow, Key). Failing to do so might make the colours of the printed version different from the one on screen.

Changing the image mode in Ps is extremely easy. Simply go to Image/Mode/ and change the image from RGB to CMYK. Save your image.



3.2. The Ps Action Panel: It will make your life easier!

However, this process becomes annoying and time consuming when you want to change, say for example, tens of images. This can be done easily using the Action Panel in Adobe Ps. The action panel allows you to literally record and save an action (example changing the image mode), and then using it later for a different image:

- Go to Window and activate the Action panel.

- Click on the **Create New Action** icon. Name the new action: RGB to CMYK.
- Click on the **Record** icon.

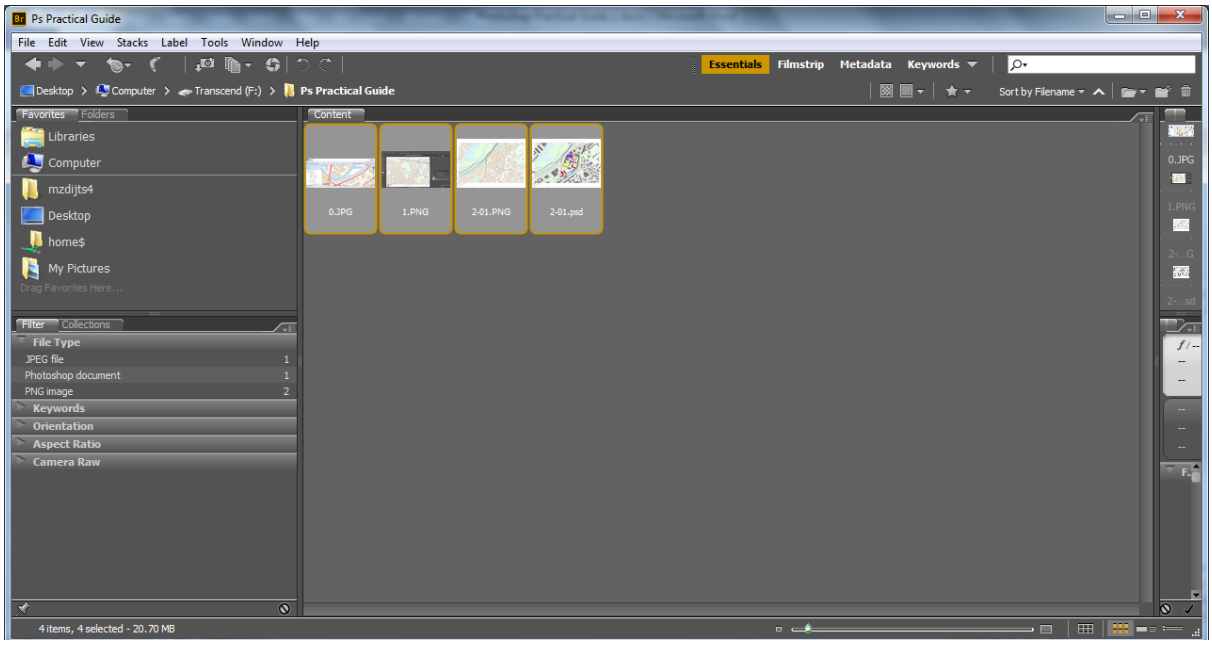
- Change the image mode from RGB to CMYK
- Click on the Stop icon. The action is saved. To repeat this action on a different image, simply open the image and hit Play.

This handy tool can be used for different actions such as creating a focus symbol on several maps, drawing site boundaries, or changing the brightness/contrast of different maps.

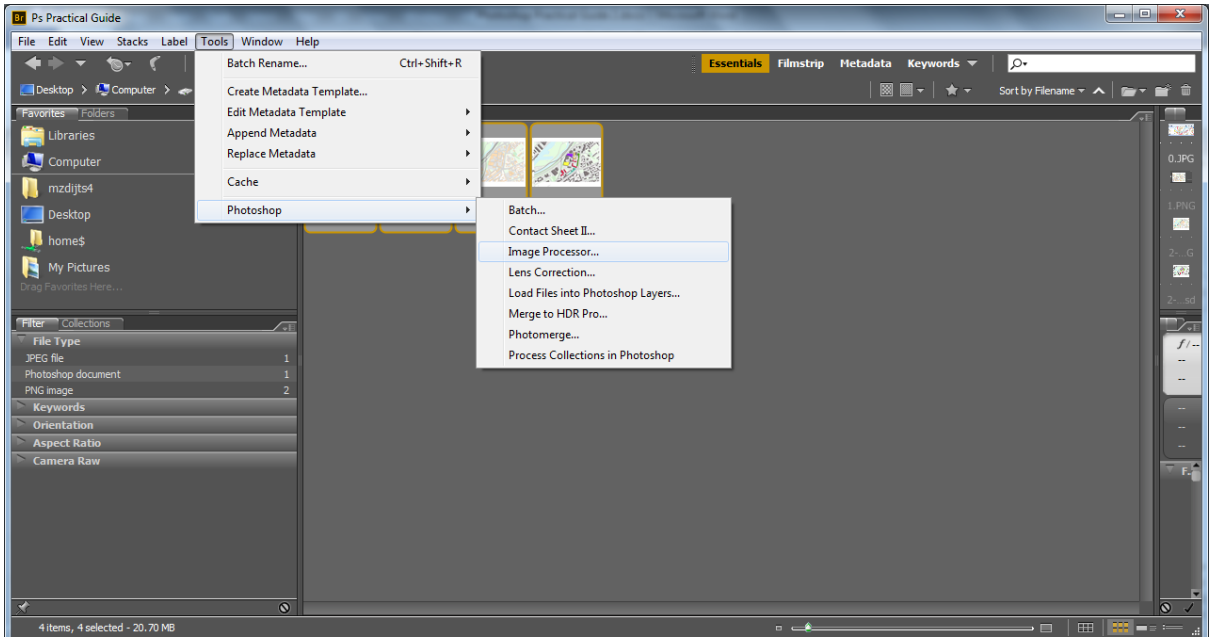
3.3. To make it even faster: Use Adobe Bridge

Even the above method can be time consuming when you are dealing with many images. Opening every single image, then activating the Action and saving the image could be a frustrating job. Adobe Bridge can do this for you!

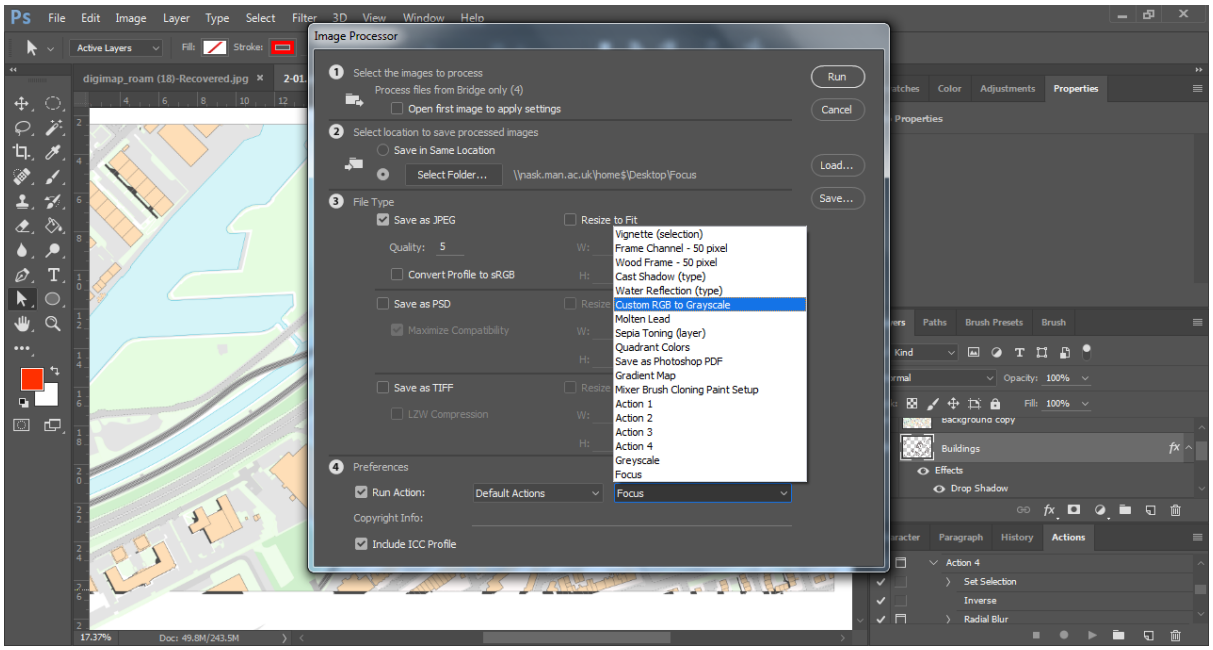
- Open **Adobe Bridge**
- From the left side panel, brows to your images and select them.



- Go to Tools/Photoshop/Image Process. Photoshop will open.



- In Ps, select the output folder, and check the Run Action option. Select the action you already saved (in your case it is from RGB to CMYK) as below.



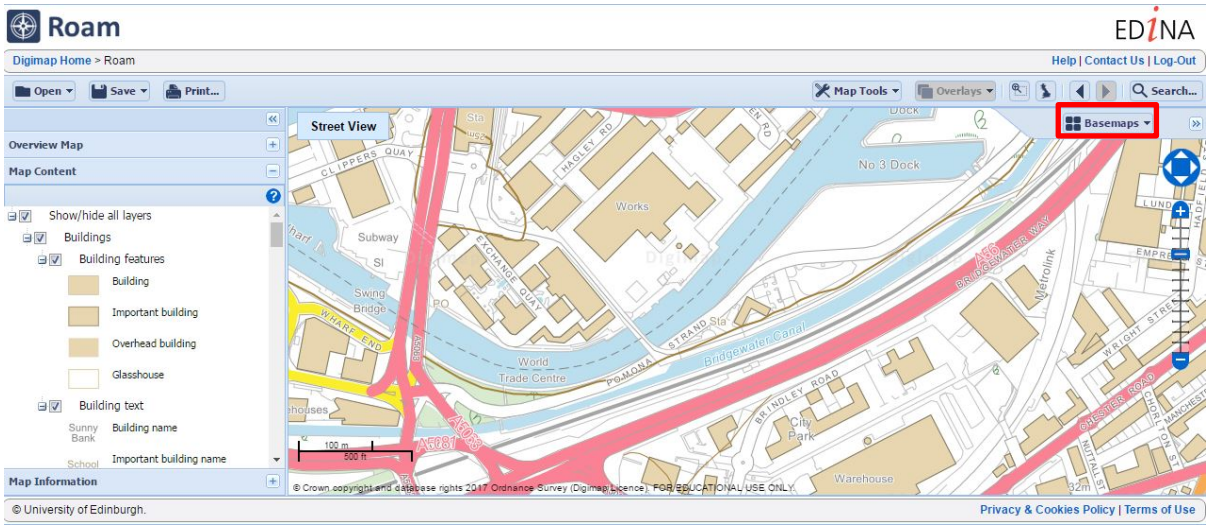
- When you finish, hit Run.

All the images are opened in Ps, the Action applied, and they are all saved automatically in the folder you created!

Adjusting your maps

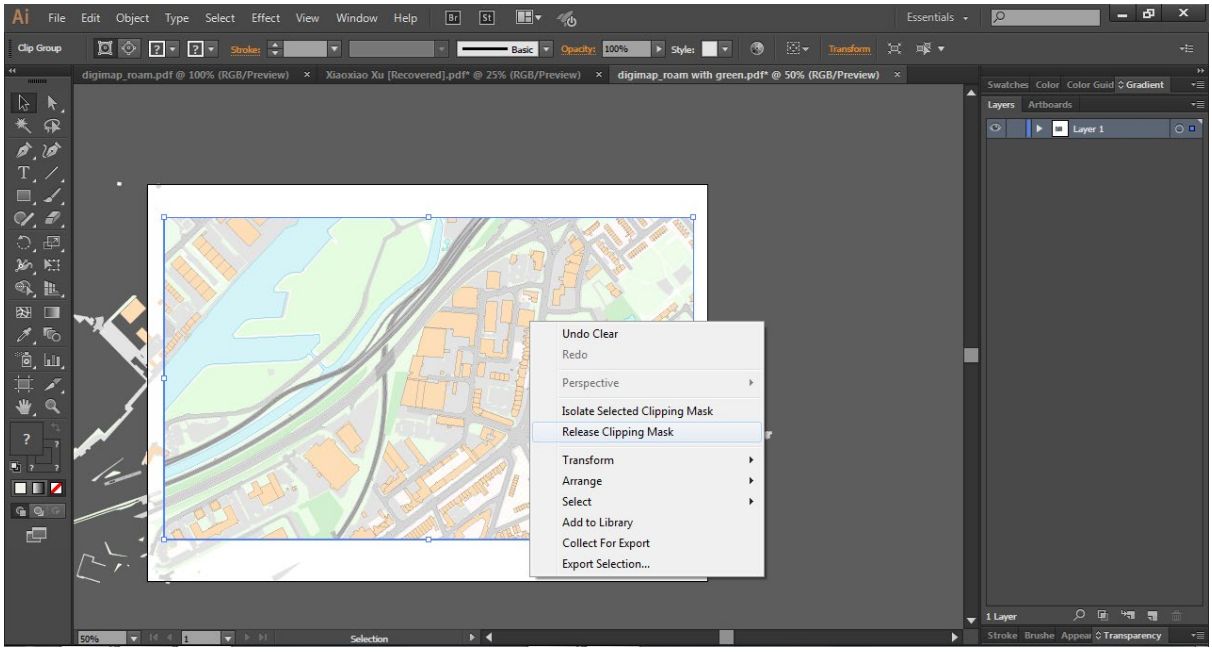
4.1 Preparing the map

Download your site map from Digimap. Make sure it is Vector so you can adjust it in Adobe Illustrator. Uncheck all the irrelevant map contents (especially labels) as these irrelevant materials will make the map heavier and more difficult to modify. Remember, you can change the map content **only in the Vector mode**. While this is going to be changed automatically to Vector in any large scale map (when you zoom in), you need to change it manually in the small scale maps. Change it from the up right corner of Digimap interface (Basemaps).

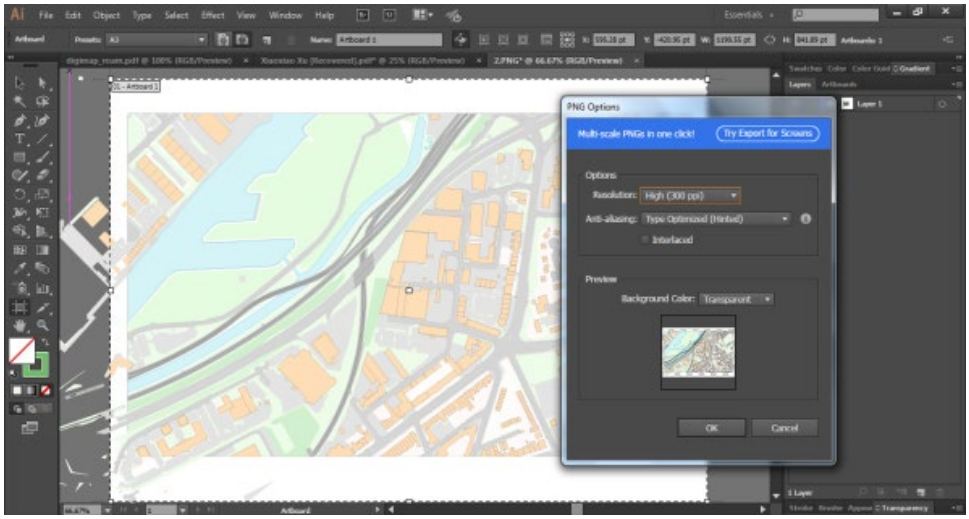


Now we are going to remove some irrelevant materials including the Digimap Water Mark using Adobe AI. Open your map with Adobe Illustrator. Sometimes the Direct Selection Tool cannot identify some elements as *Objects* such as trees or roads. That is because these objects are part of a larger Clipping Mask. You can release the Clipping Mask to have more freedom in selecting objects. Select an object/Right Click/ Release Clipping Mask. Now select the water mark with the Direct Selection Tool/ from the upper panel click on Select Similar Objects 

Then hit Delete. Repeat this until your map is clean.



Save your map as a JPEG or PNG to adjust later in Adobe Ps (refer to our lecture on file extensions). File/Export as/PNG (make sure to check Use Artboards)/ and then choose the resolution to 300 ppi. The higher the resolution, the larger the file is, and the better to use in Ps. The file is now saved and ready to use in Adobe Ps.



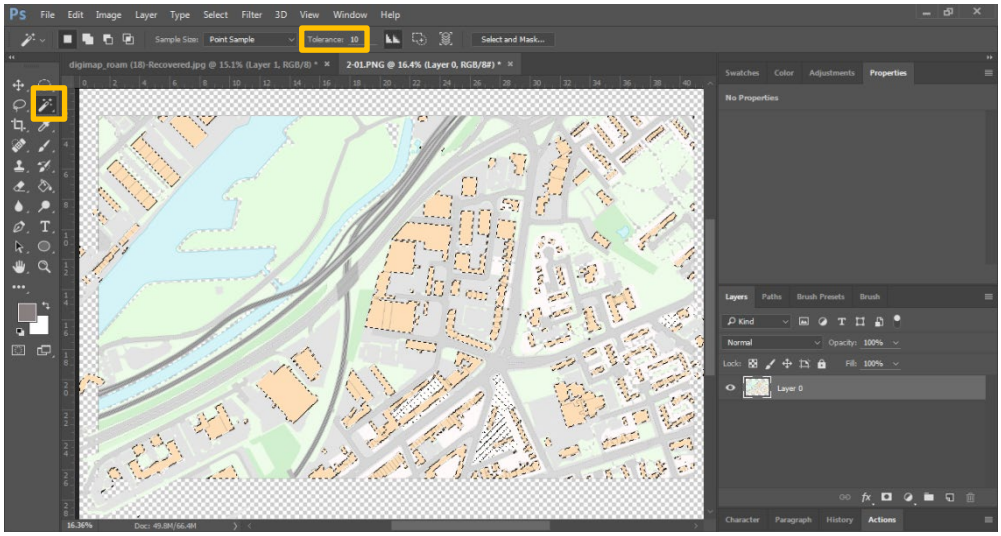
<u>Remember: Important note regarding files extensions</u>

A **PNG** file is a lossless image that allows transparency to show even on your desktop, while a **JPEG** file is a small lossy solid image that does not understand transparency. So make sure that you save your file as a PNG if you have transparency in your map.

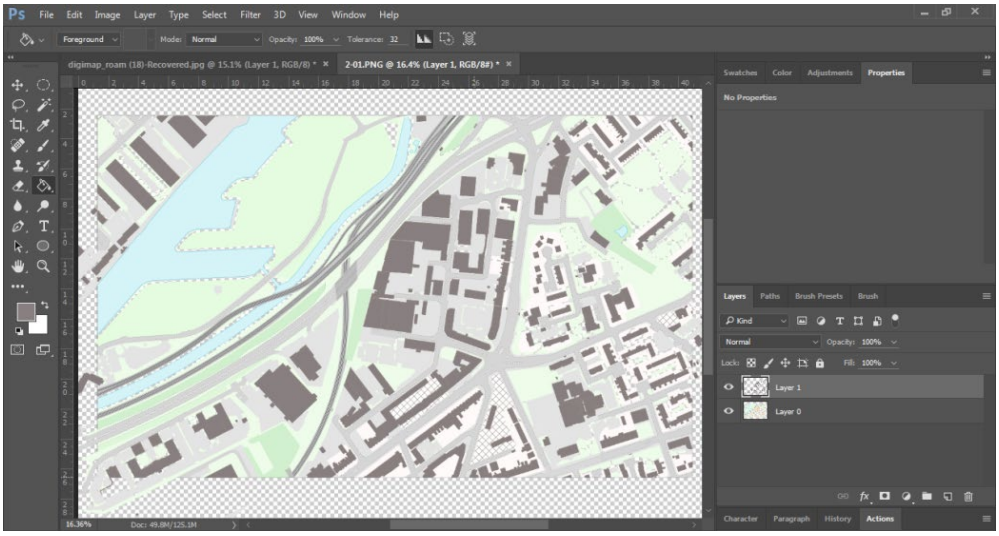
4.2 Adjusting a map with Photoshop

4.2.2. Changing buildings colours

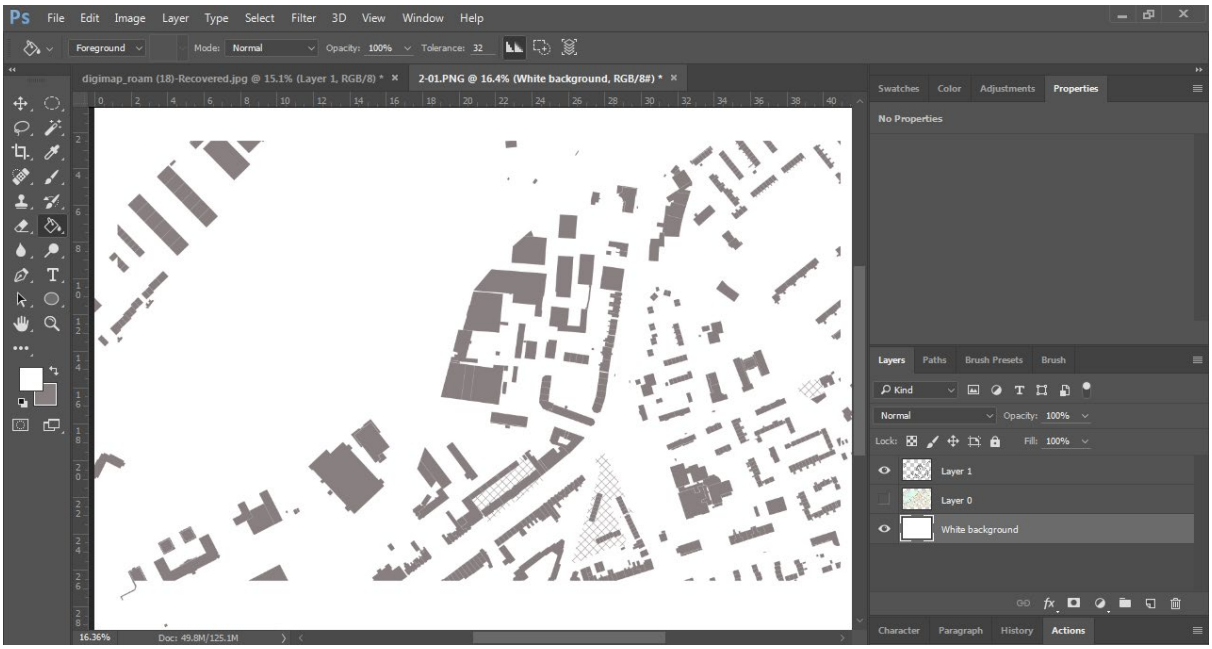
- Using the Magic Wand, select a building. All elements of similar colours are going to be selected. You can adjust the Magic Want Tolerance if needed.



- **Ctrl+C /Ctrl+V**. Buildings are now copied to a separate layer. Name it *Buildings.*
- Hold **Ctrl** and click on the *Buildings* layer thumbnail. All buildings are selected.
- Use the Brush tool or the Paint Bucket tool to colour buildings (give them black/grey colour).
- Ctrl+D to de-select. All buildings got a new colour.

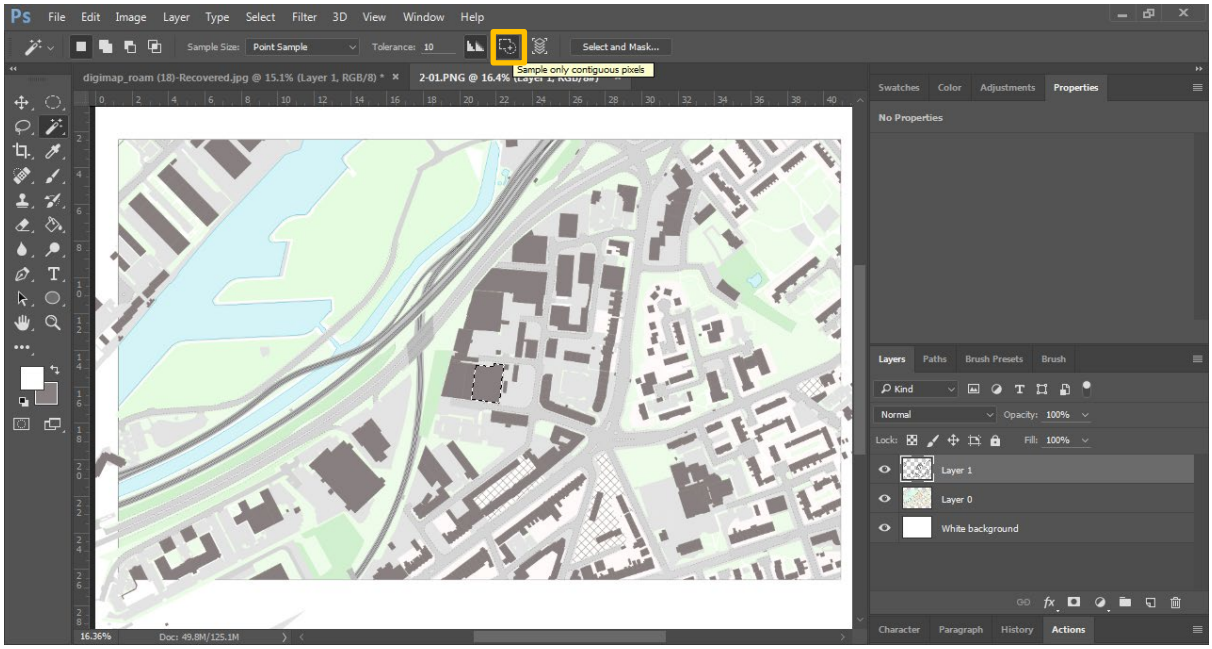


- Create a new layer, name it *White Background,* and give it a white colour using the paint bucket. *Drag below the current background layer.* Hide the background layer. You will get a figure ground.



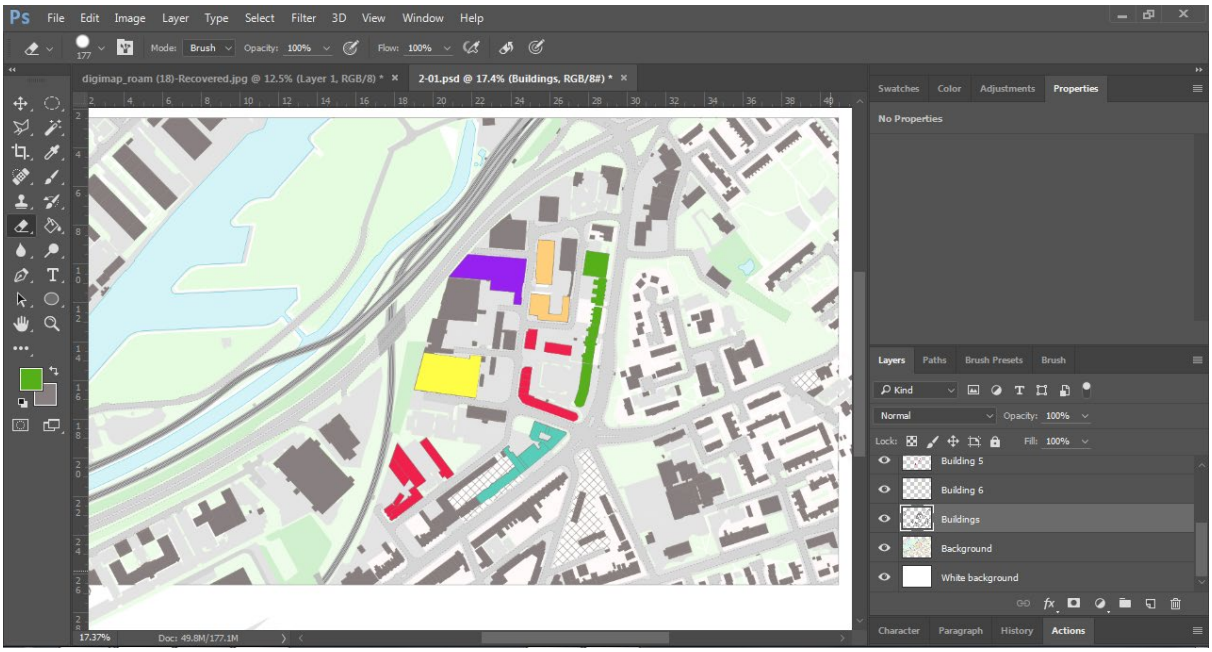
To highlight some buildings by giving them distinct colours do the following:

- Select it with the Polygonal Lasso tool *or*
- Activate the Magic Wand (W). Make sure that the *sample only contiguous pixels* is activated.



- S
  elect the buildings you want to give a specific colour (remember: **Hold Alt** to subtract from a selection, **Hold Shift** to add to selection). Ctrl+c/Ctrl+v to put it in a separate layer. Use the brush tool to change its colour.

- Repeat the operation for each building use. **Do not** colour on the *Buildings* layer. Put each building use on a separate layer in case you want to change it later.



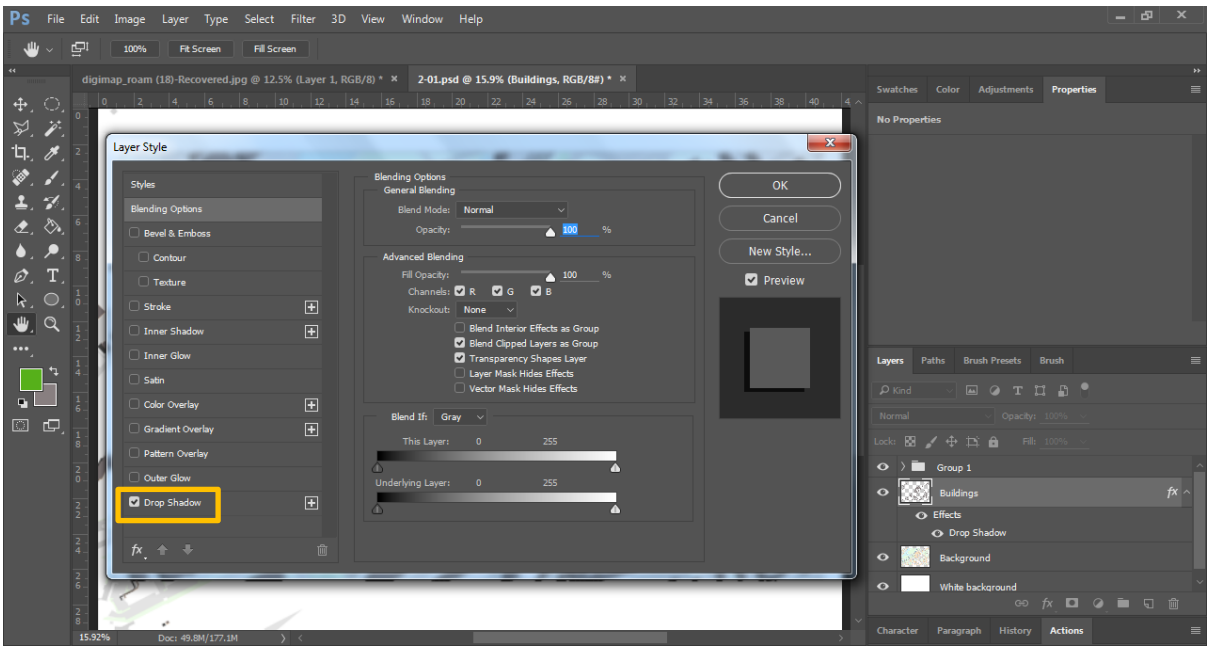
- Select all buildings layers and put them in one group (Ctrl+G). Call it Buildings.

4.2.3. Dropping shadows

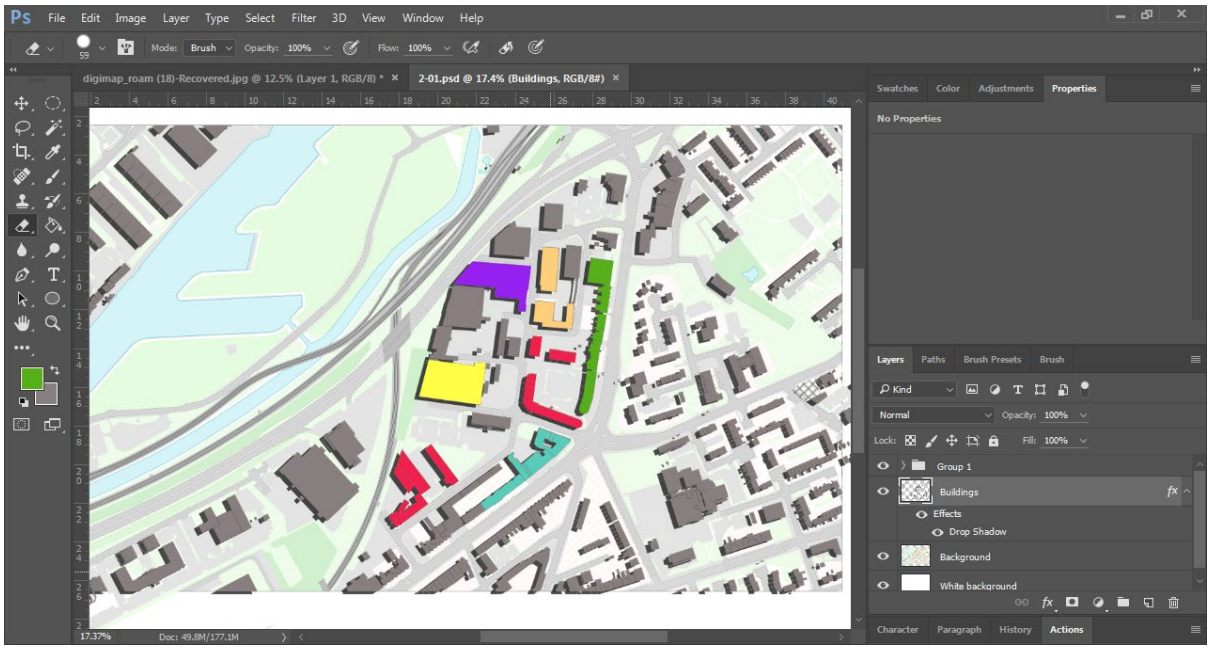
- Select the *Buildings* layer
- Double click on the Building layer thumbnail to activate the **Layer Style** panel
- Check the **Drop Shadow** from the left side panel option and select it
- Play around with the shadow options to change the opacity and distance

Note

- You can use this method to drop shadow of any layer. You can do the same process for trees layer for example.
- Keep in mind that the closer the object is, the sharper the shadow.

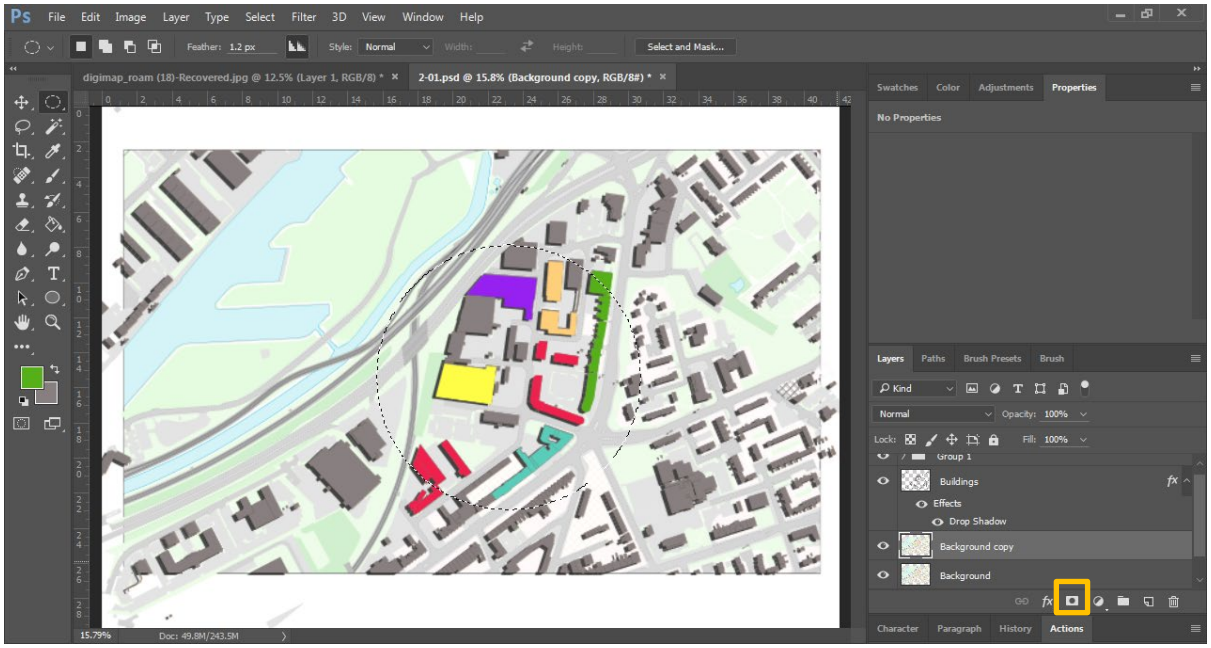


You should end up with something like this:



4.2.4. Focusing on a specific area: The spot light method

- Duplicate the Background layer (Ctrl+J) and select the Background copy layer.
- Select the area you want to focus on using the **Elliptical Marquee** tool (remember: hold Shift to maintain proportions; Hold Ctrl to start from the centre of the circle).
- Click on the ***create clipping mask*** icon.

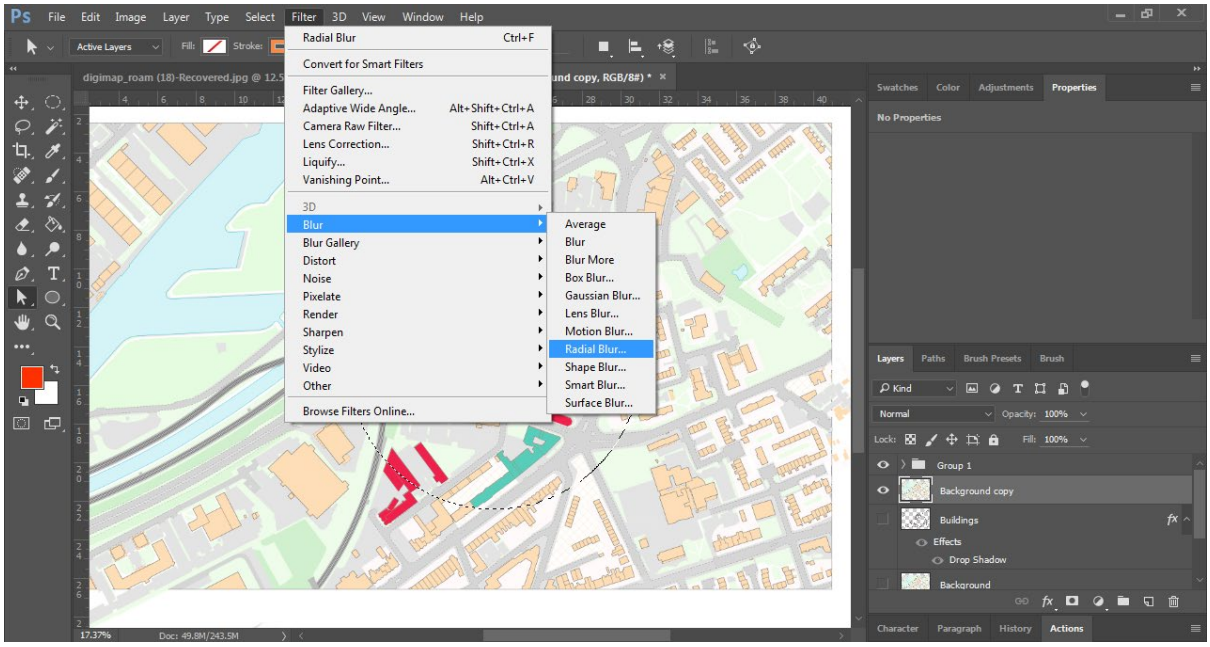


- Double click on the Mask thumbnail (just by the layer thumbnail)/ Increase Feather and Reduce the density
- Create a new layer and give it a full black fill. Drag it to below the Background layer.
- Turn off the background layer. You should end up with this:

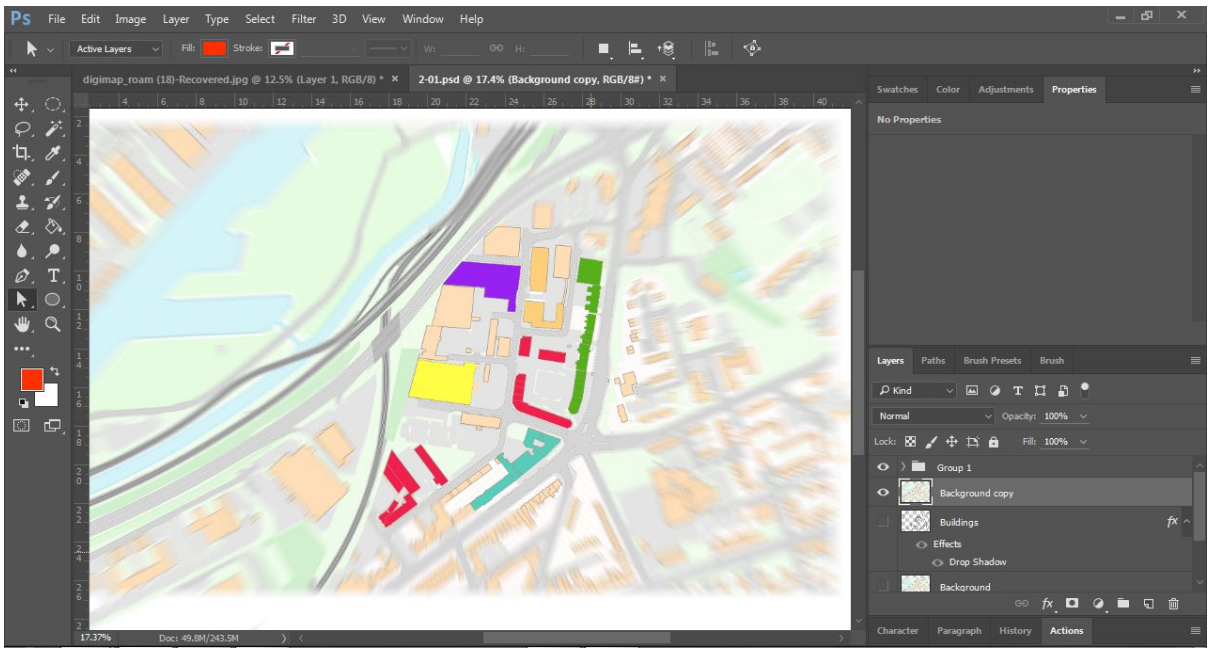
4.2.5. Focusing on a specific area: The blur method

- Duplicate the Background layer (Ctrl+J) and turn it off. Select the Background copy layer. Drag it up, yet under the *Buildings* group.

- Select the area you want to focus on using the **Elliptical Marquee** tool (remember: hold Shift to maintain proportions; Hold Ctrl to start from the centre of the circle).
- Ctrl+Shift+I to **invert** selection (i.e. to select the surrounding area rather than the focus)
- Filter/Blur/Radial Blur. Select **Zoom** and put the amount to 10.



You will end up with this:



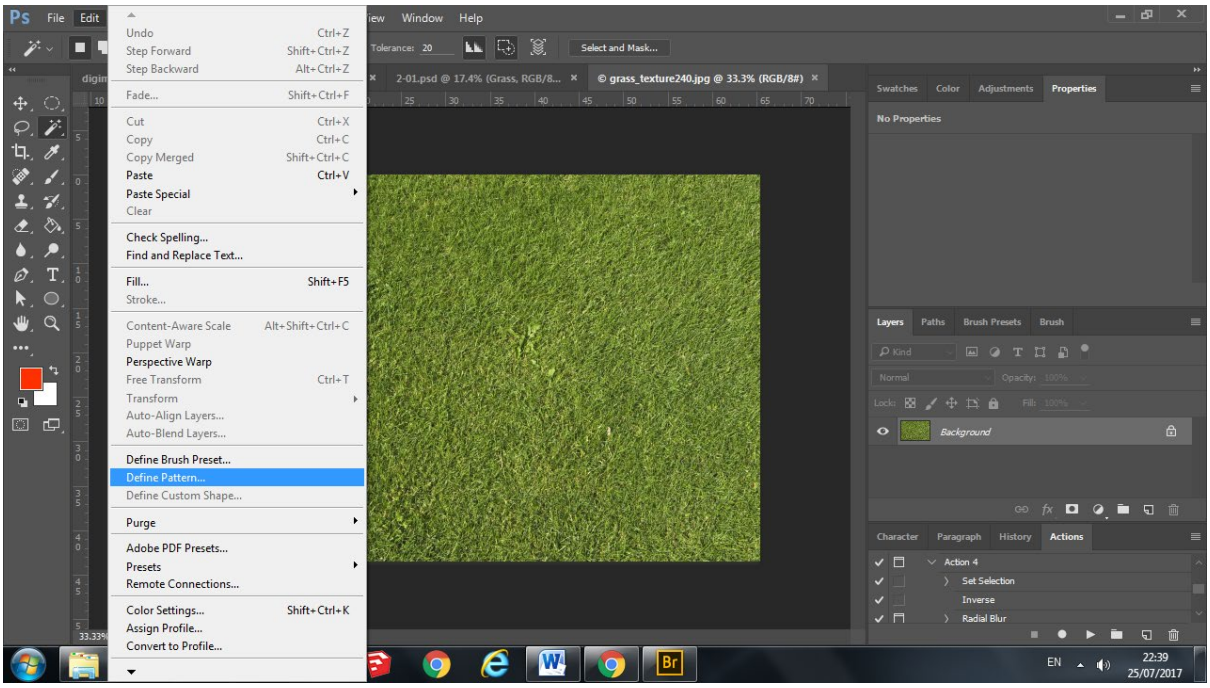
- Draw a circle around the selection with the **Ellipse** tool. Change the stroke weight and shape. You will end up with this:

4.2.6. Adding grass texture: the Pattern Overlay method

To use the Pattern Overlay, you need a pattern (grass texture for example) to apply on a specific layer. You can create that pattern easily.

- Search the internet for a **seamless** grass pattern like this for example:

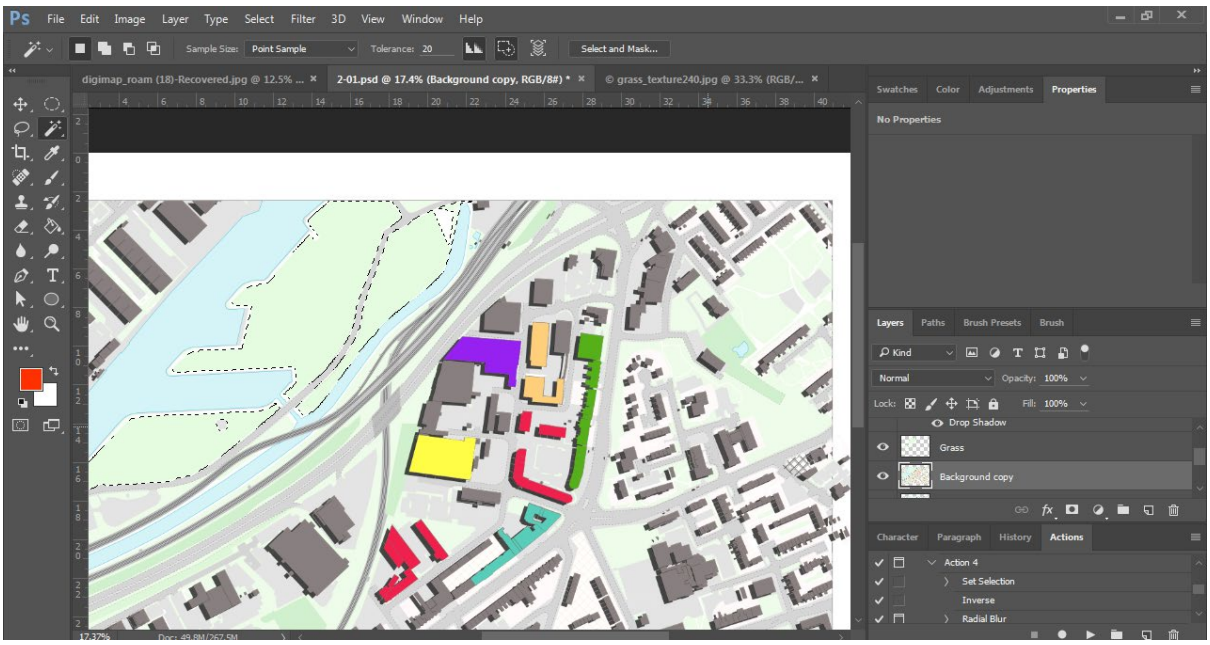
- Open the image with Ps
- Edit/Define pattern /give it a name



The grass texture is now saved as a pattern.

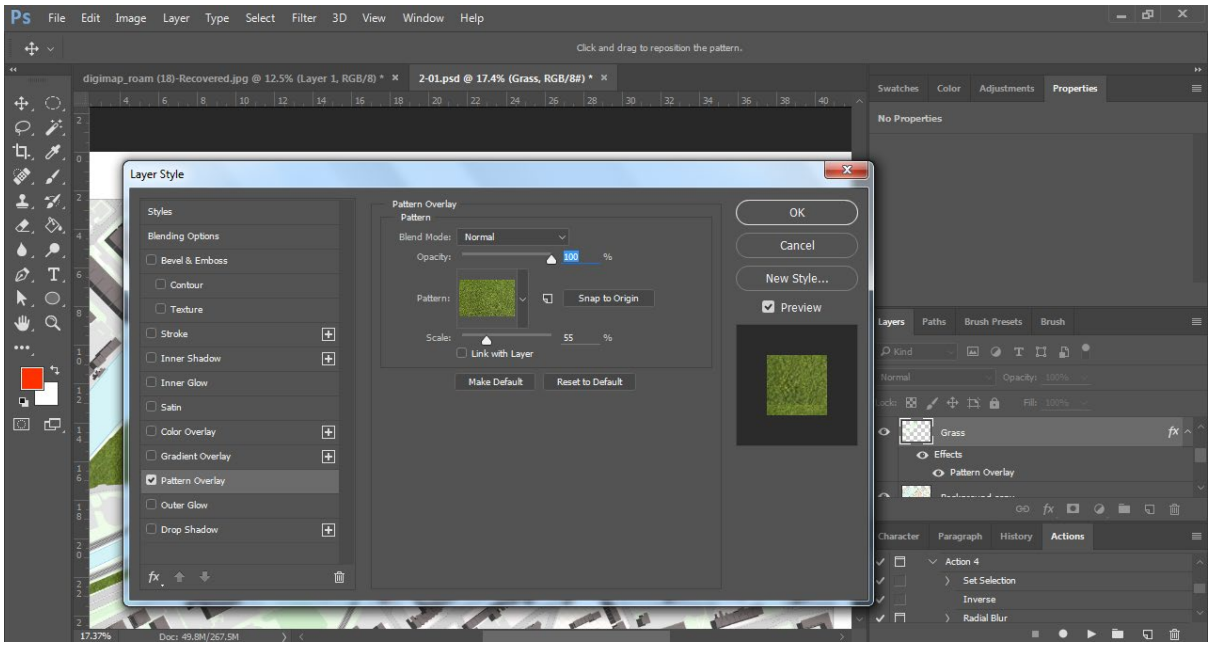
- Go to your map again and create a new layer. Call it Grass.

- Select the Background Layer; select the green space you want to add texture into it.

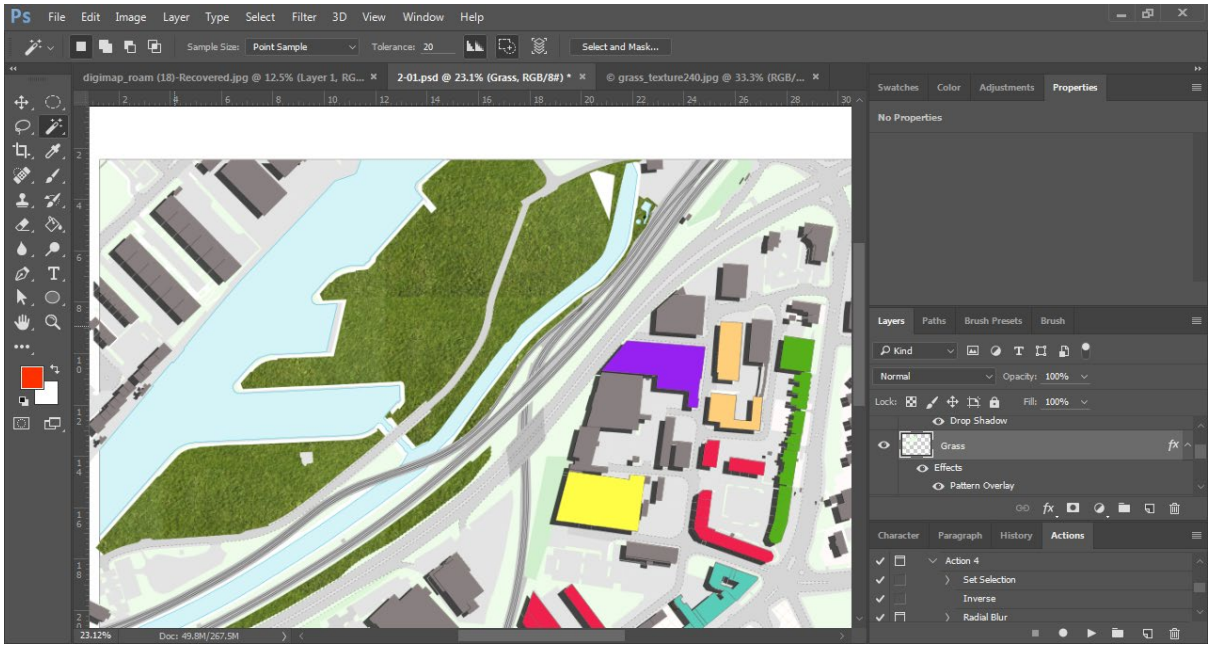


- Ctrl+C/ Select the Grass Layer/Ctrl+V. The area is copied to the Grass layer.

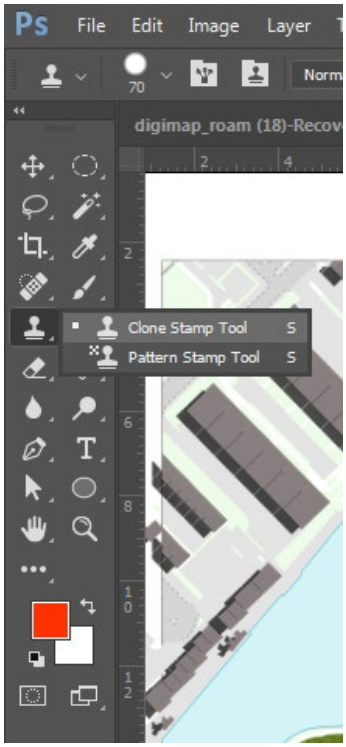
- Double click on the layer thumbnail to activate the Layer Style panel
- Check Pattern Overlay and select the grass pattern you already created.



You will end up with something like this:



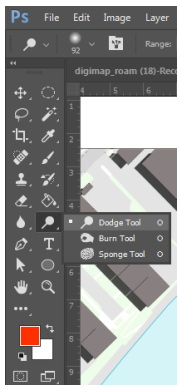
- **To edit the patter overlay you need to rasterize it.** Right click on the layer (not the thumbnail) /Rasterize Layer Style
- Use the **Clone Stamp** (S) to make the grass seamless.



- Select the Clone Stamp Tool/Hold ALT to define the area you want to be cloned/mouse click/ Release ALT/Brush on the texture you want to be replaced with the cloned pixels.

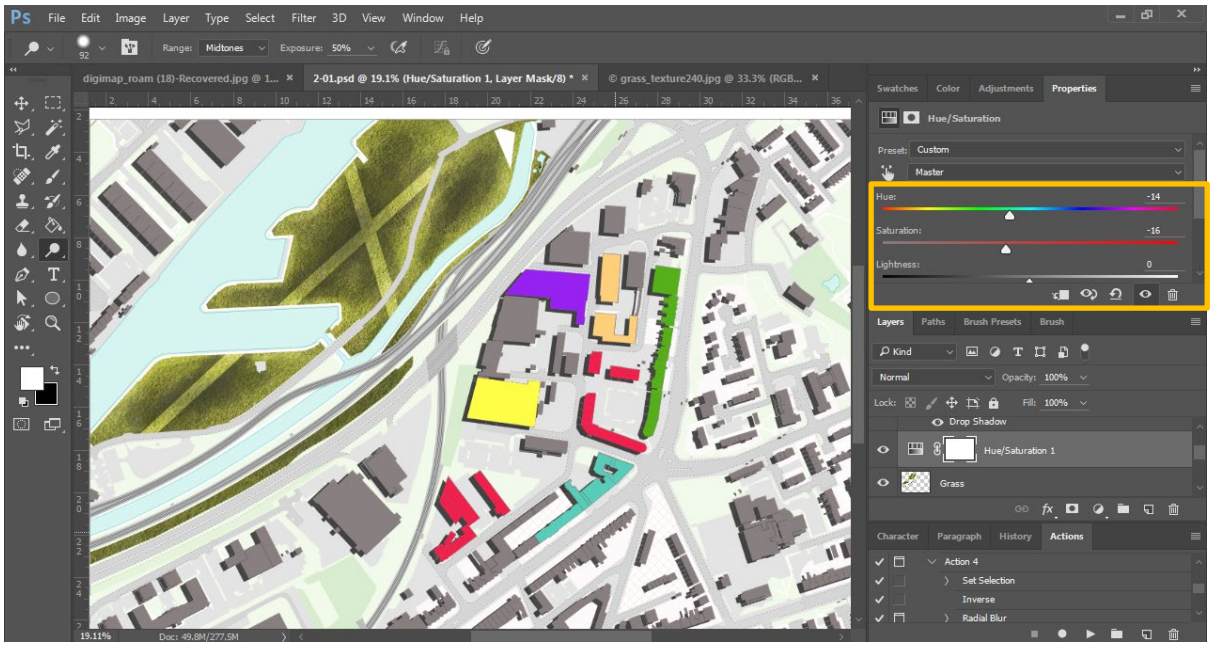
Before (note the grass image boarders) **After**

- Use the **Dodge and Burn tools** (O) to darken and lighten the grass colour to make it more appealing.



Your map should look something like this (In order to give the effect below, I used the Polygonal Lasso tool to include/exclude areas then I used the Burn/Dodge tools):

- Create an Adjustment Layer of Hue/Saturation (refer to the Recap section at the beginning of this handout) and adjust it as below to reduce saturation and make the grass colour calmer and more realistic.



4.2.7. Adding trees to the master plan

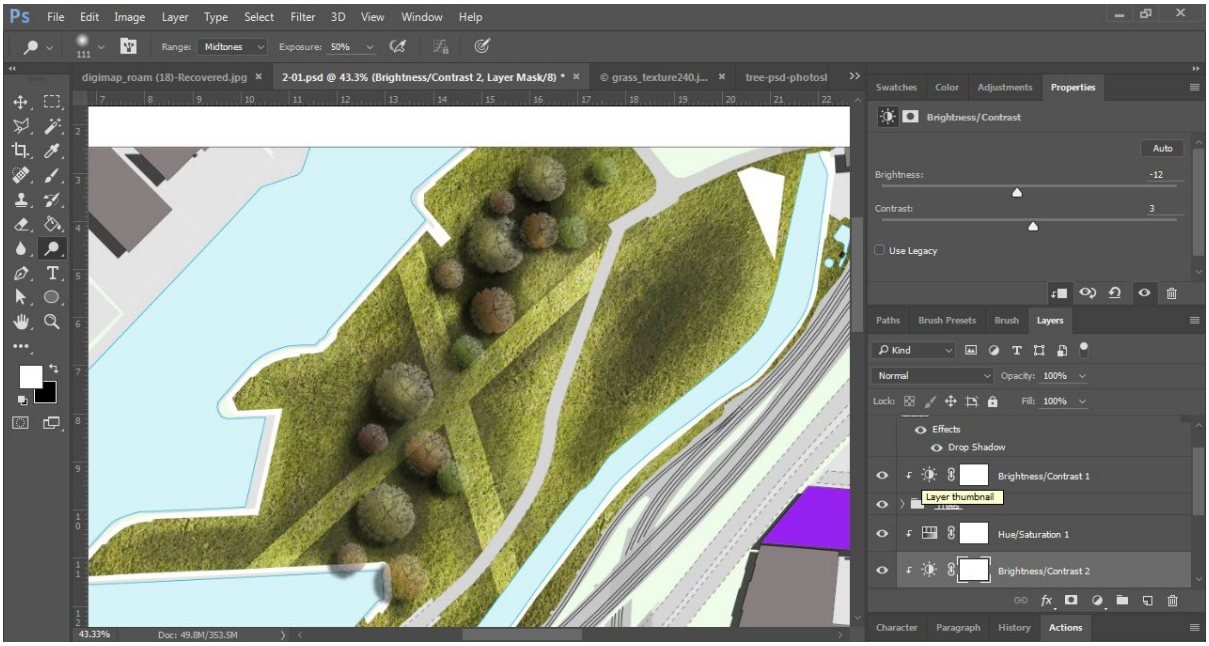
- Search the internet for the tree you want to add. Something like this:

- Open the tree file in Ps
- Select the white and grey areas that surround the tree with the **Magic Wand**
- **Ctrl+Shift+ I** to invert selection; now the tree itself is selected
- **Ctrl+C/Ctrl+V** : The tree is separated on a separate layer
- Create a black layer and put it underneath the tree layer to make sure no white areas are left over. If you are happy, save the image as a .**PNG file to preserve transparency**.

- Drag the new PNG tree to the masterplan file in Ps.
- Scale it up a bit, and **convert it to a smart object** (right click on the tree layer)
- Ctrl+T/Scale it down.
- With the **Move tool** selected, Hold Alt and drag the tree to copy it.
- Create different sizes (Hold Ctrl and click on a tree to select it, Ctrl+T)
- Play around with the Hue/Saturation tool (Ctrl+U) and the Colour Balance tool (Ctrl+G) and with the transparency to change trees colours and appearance.
- Put your trees in a separate group (Ctrl+G)
- When you are happy: Double click on the group to activate the Style panel/ drop shadow.

- Now bring another tree (such as the one below) and repeat the above steps.

- Use the Burn/Dodge tools to darken and lighten the grass layer again to add shadows.



The green area should look like this

Now repeat the process for all green areas in the map. The map should look like this:

4.2.6. Adjusting buildings shape and adding details

Tips: The process is simple

- Make sure you are on the correct layer
- Copy the layer and work on the copy version in order not to mess with original
- You will need the Lasso tools to select the parts to be modified.
- You will need the Eyedropper (I) to select colors.
- You will mostly need the **Brush tool** (with colour that matches the floor colour) or the **Eraser tool** to erase buildings. Always work in a sharply selected area to make your work neat and clean.

To add buildings

- Make sure you are on the correct layer created for new buildings
- You can use the lasso tools to create shapes. Select and fill your selection with the brush tool.
- Buildings color should be clearly distinct from the floor color.
- You can trace your sketch easily. Pull the map to Ps/adjust its scale/ make it transparent/select the buildings layer and trace the sketch.

Making changes:

Making changes to the master plan in Ps is very easy. Follow the following tips to delete a building or a landscape feature for example:

- Use the selection tool to **select the area** that needs change (just select roughly around the building)
- Make sure you are on the correct layer
- Use the **Eyedropper** (I) tool to select the floor colour
- Use the **Brush** tool (B) to paint over the area; the building is deleted

- Create a new layer (Ctrl+Shift+N)
- Draw a new building using the Polygonal Lasso tool
- Fill the selected area (the building shape) with the required colour .
- You can do the same to draw the building shadow, or you can put it on a separate layer and use the Layer Style panel to drop shadow.

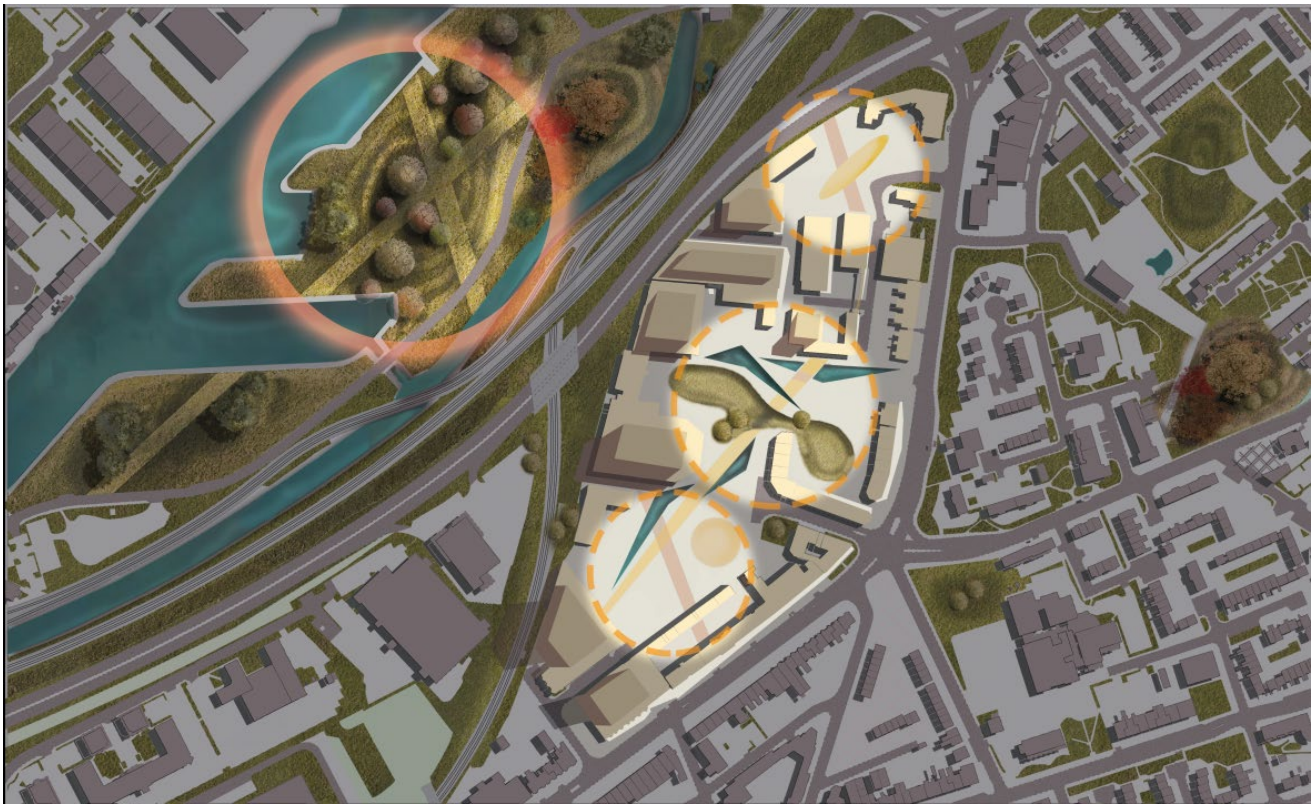
Note:

Never override your original file; always work on a new copy

Now use the focusing techniques introduced before to focus on some areas. Below we are using different methods to focus on different elements.

The outer glow effect you can see below is created using the layer style technique:

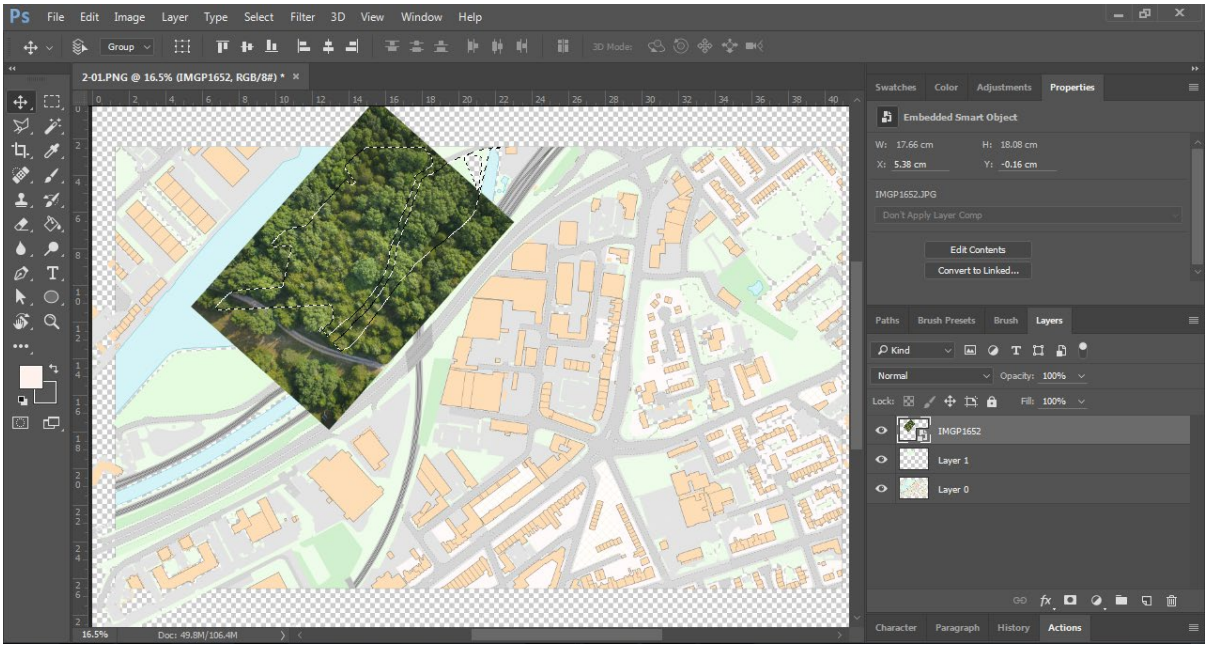
- Select the area you want to glow using the Lasso tools
- Put it on a new layer
- Go to the Layer Style
- Check the Outer Glow option and edit it to change colour…etc.
- Create a new black layer with 50% transparency and put it below it.



4.2.7. Using Clipping Masks to fill in green areas

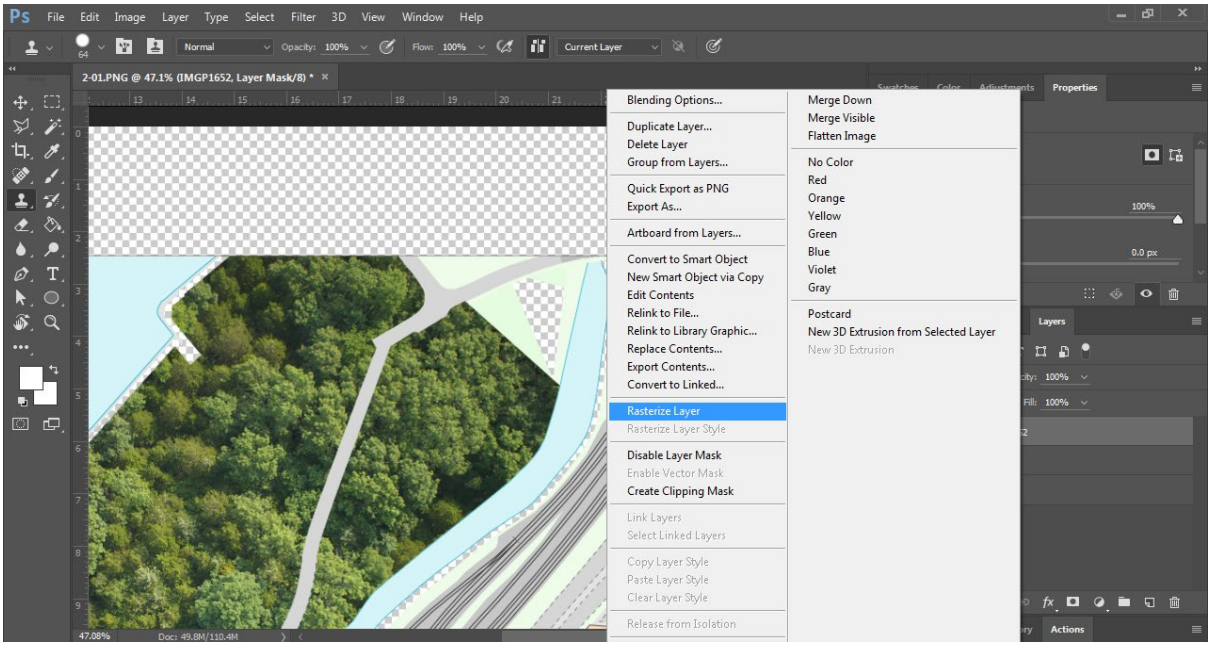
In some case you might want to fill up a green space randomly without actually designing it. So we are going to use an aerial view of a forest as a texture; something like this:

- Drag the image into Ps. Scale and rotate it and move over the green space in your master plan.
- Select the master plan layer (layer 0)
- now select the green area you want to fill and copy it to a new layer (layer 1)
- Hold Ctrl and click on Layer 1 thumbnail: the selection is activated
- Select the forest image layer



- Click on Make Clipping Mask icon. You will end up with something like below.

- As the layer is a smart object, you need to rasterize it to edit it freely. Right click on the layer/Rasterize layer

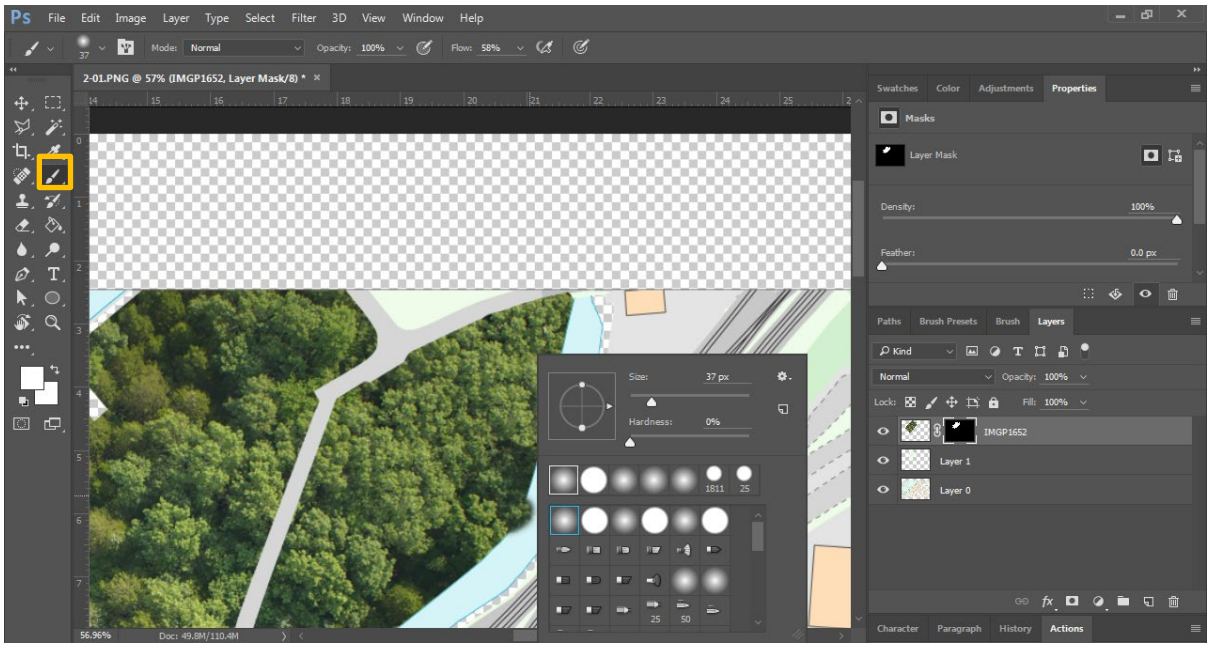


- Now use the **Clone Stamp** tool to fill the unfilled areas (always make sure you are on the correct layer when using Clone Stamp).

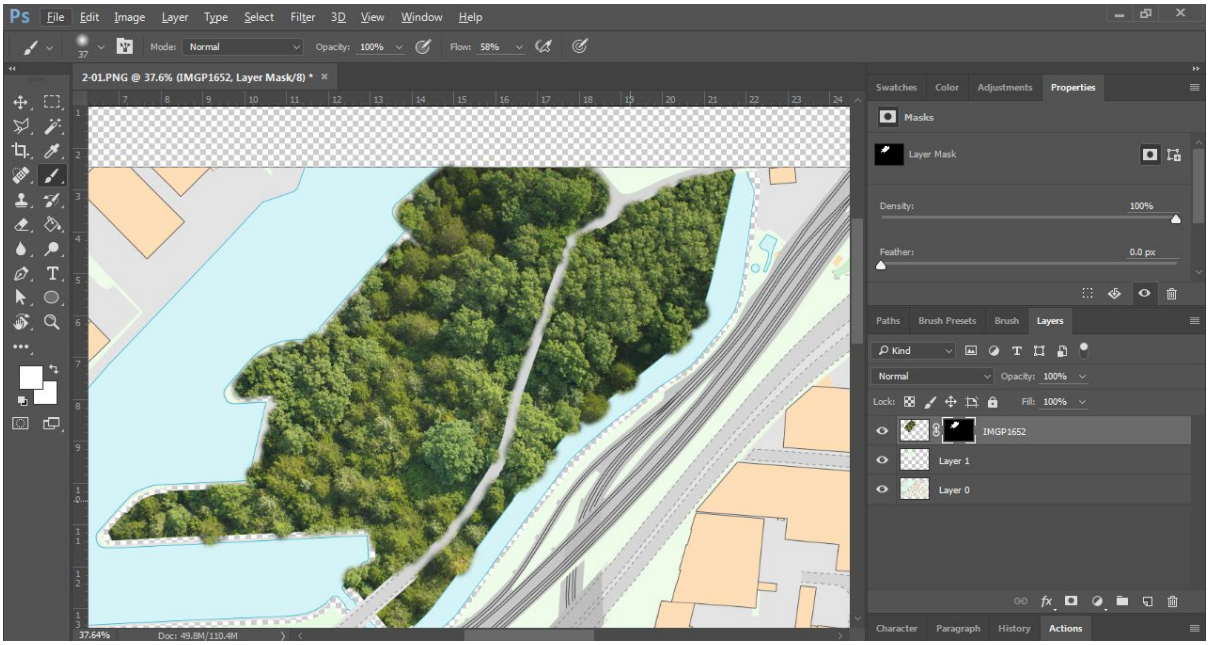
The edges of the green area look sharp and unrealistic. The Layer Mask technique we are using is designed to solve such problem.

- Select the mask (**Not** the layer, this is essential).
- Select the Brush tool and choose the white colour with a soft round tip as below.

- Carefully paint the edges of the mask. What you are doing is basically revealing some parts of the mask to make the trees and the canal overlap, giving a realistic effect.

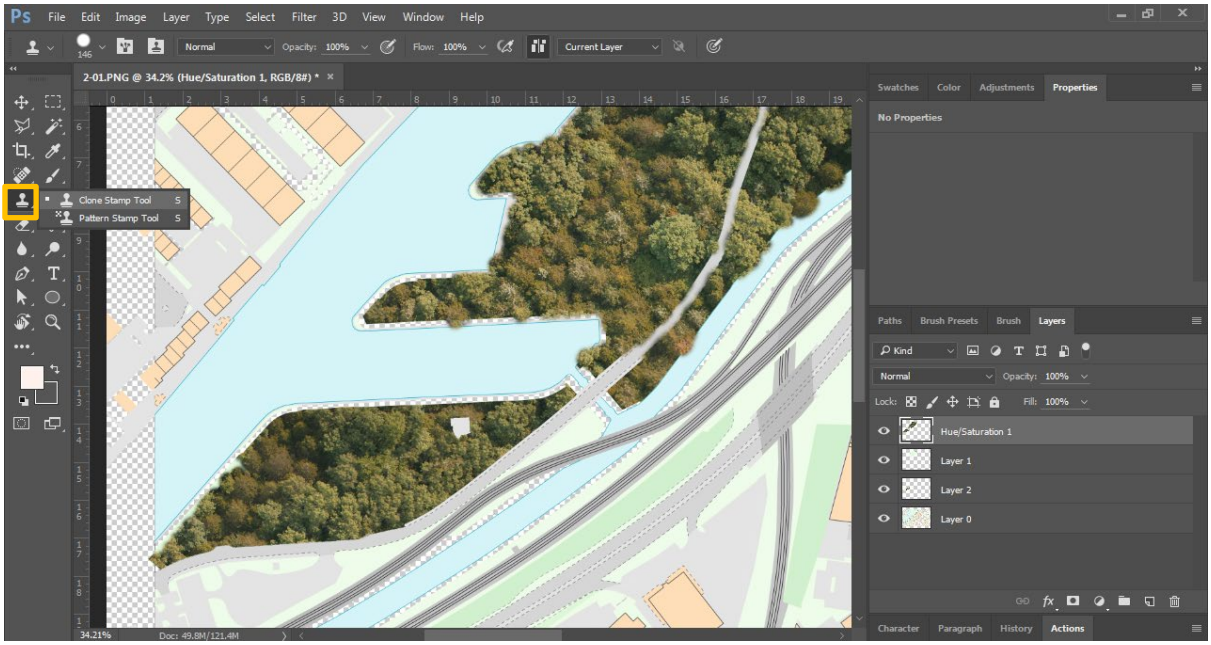


You will end up with this:



- Use the Clone Stamp tool to fill the other island

- Change the Hue/Saturation

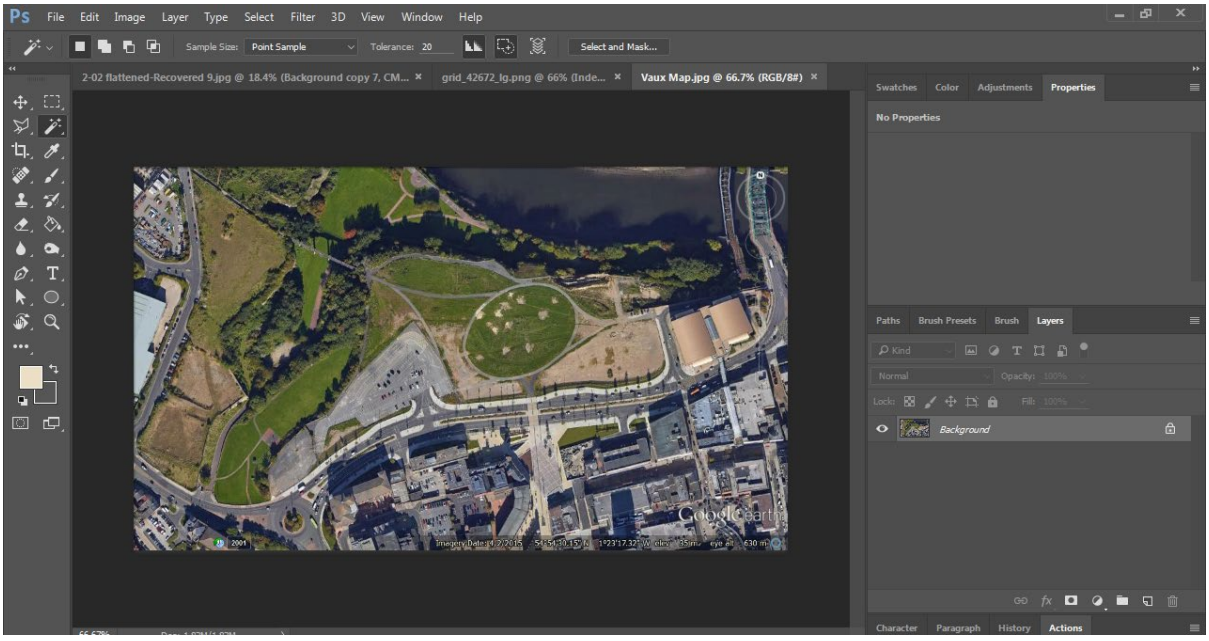


Your final master plan should look like this

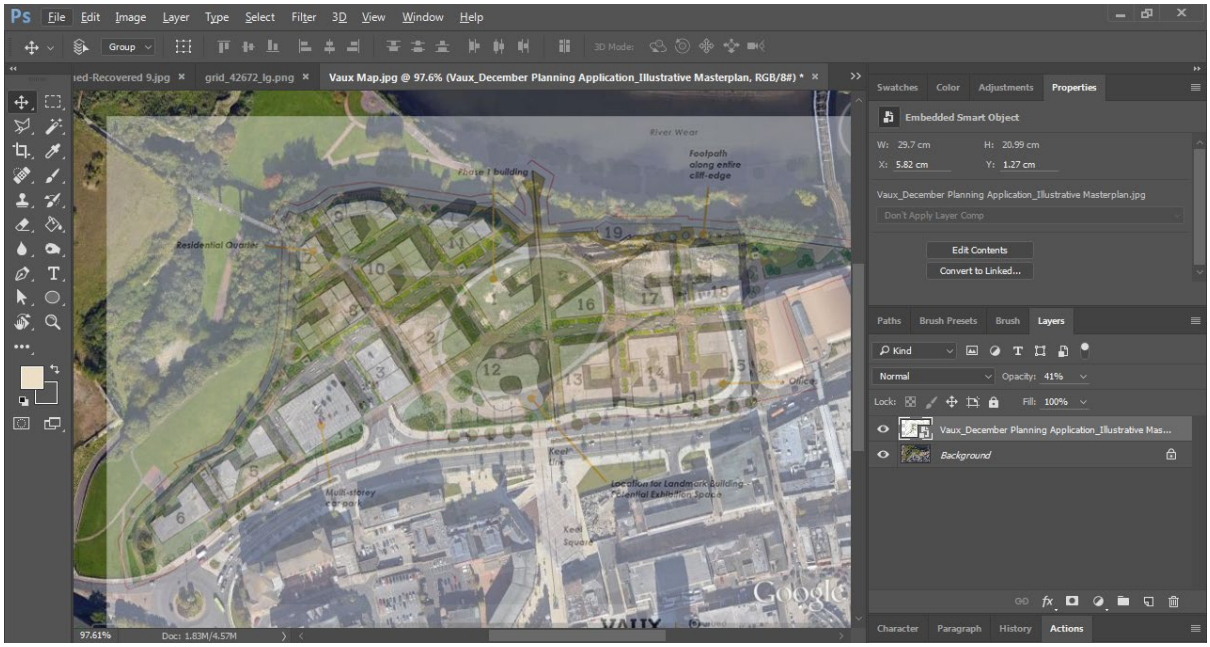
4.2.8. Using Clipping Masks to merge the master plan with the surrounding context

We are going to use exactly the same method explained in the above section to merge this master plan of Vauz Brewery, designed by URBED, with its actual surrounding context.

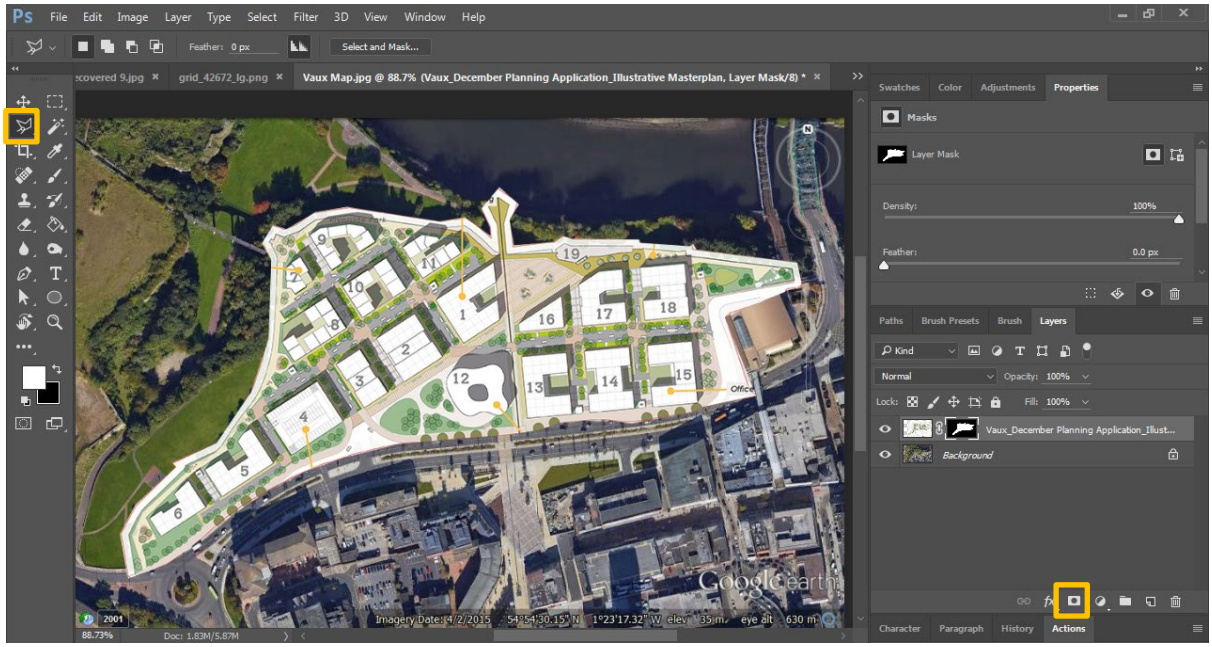
- Download the site map from Google Earth or Digimap Aerial service. And open it with Ps



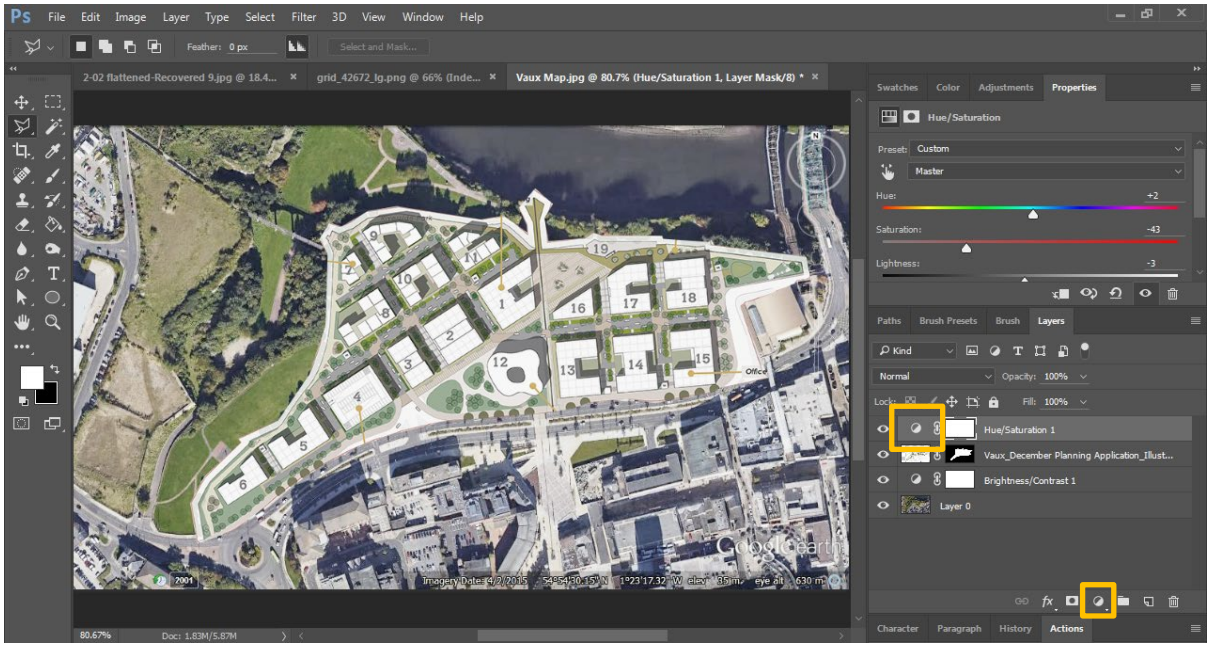
- Drag the masterplan map to Photoshop and place it above the current background. Select the layer and make it transparent/ Change its scale so they are perfectly aligned and fit.



- With the Polygonal Lasso tool, draw a selection line around the masterplan boundary.
- Create a **Clipping Mask** (vector mask) from the Layers Panel bottom bar. You should end up with this:



- Add a new adjustment layer of Hue/Saturation. Adjust Hue/Saturation as below to give the background and the masterplan close colours.



- Merge the edge of the masterplan with the Google Earth background. To do this, you need to adjust the Feather of the Layer Mask you created as explained before (make sure you select the mask and not the layer). Then select a **black** brush/right click/give it a soft round tip and an appropriate size/ and start overlapping the trees from the background with the edges of the masterplan. You should end up with something like this:

- After finishing this step the masterplan should be merged with the background like below:

- Create an Adjustment Layer of Photo Filter. Adjust the colour density of the filter to make the final emage look natural. You might need more adjustment layers to finalize your image. This depends on the background and the masterplan colours and style.

4.2.9. Manipulating the landscape

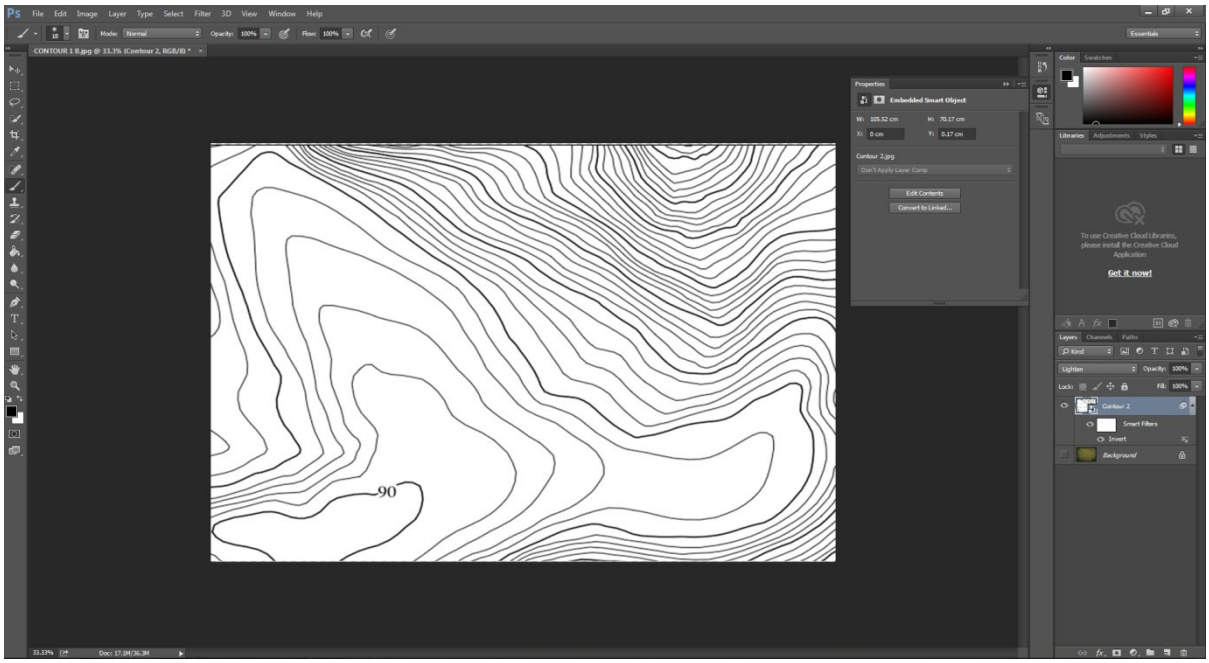
In this exercise we are using two images to create an attractive, professionally finished landscape. The purpose of this exercise is to make you familiar with the different tools and techniques that can be used to enrich your final masterplan.

The first image is an ordinary landscape modified for the purpose this exercise.

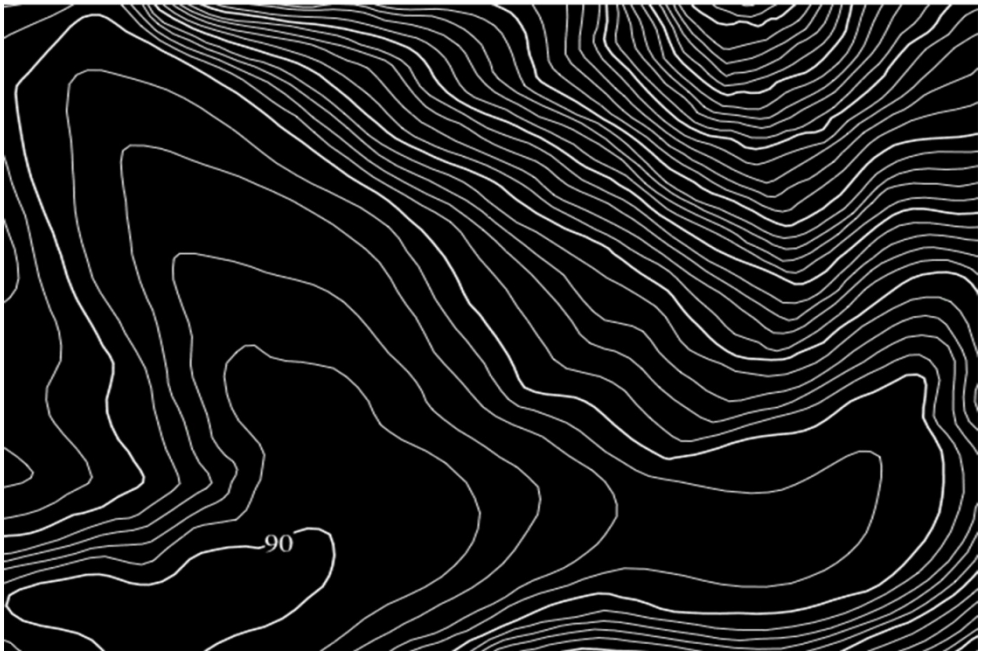
The second image is a contour map. You can download a contour map for your site from Digimap. You need to use the Data Download section (not Roam) and save it as a CAD .dwg file/open in Autocad/Save it as a JPEG file (refer to CAD handout).

- Align the two images above each other (use the Transform tool)

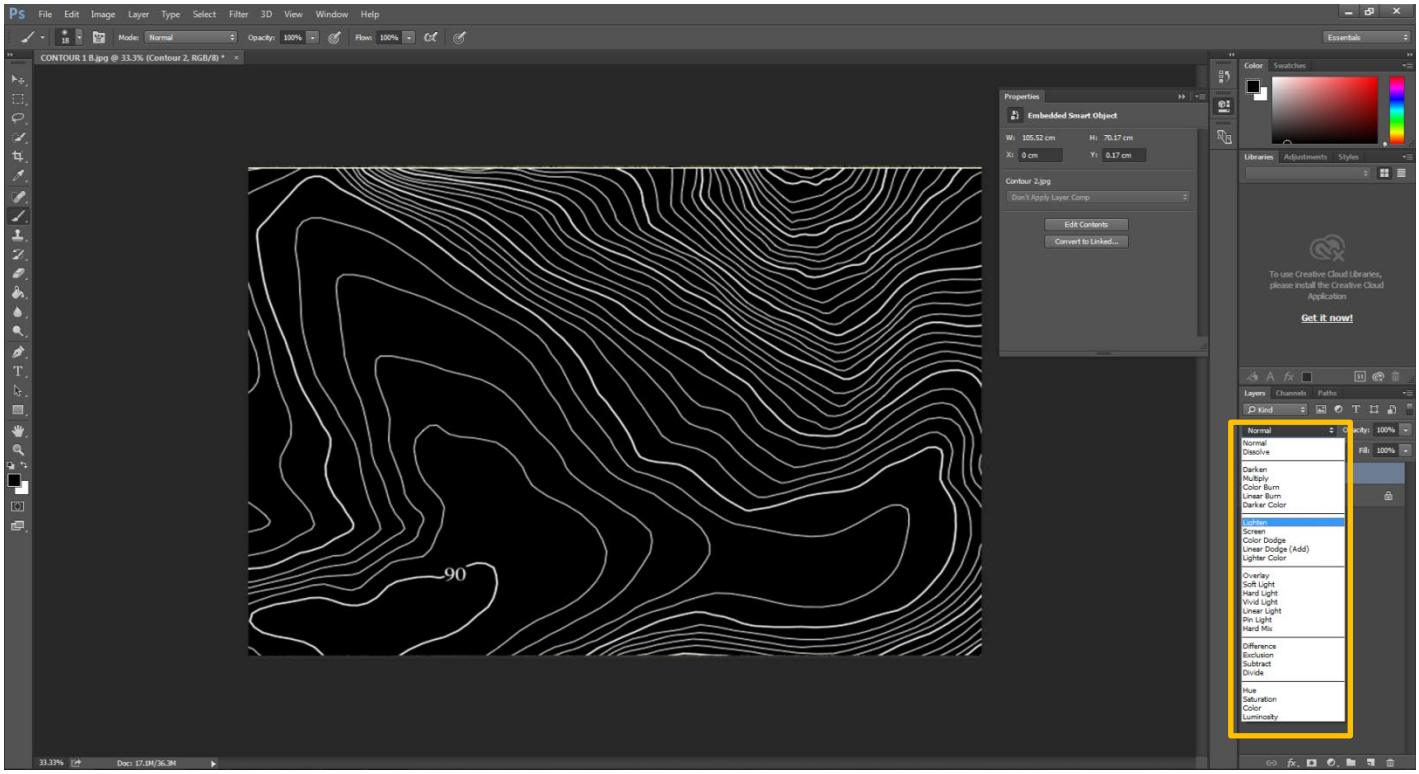
- You need to invert the colours of the contour map so the lines become white and the background becomes black. To do so: Select the layer/ Image/ Adjustment/Filters/Invert



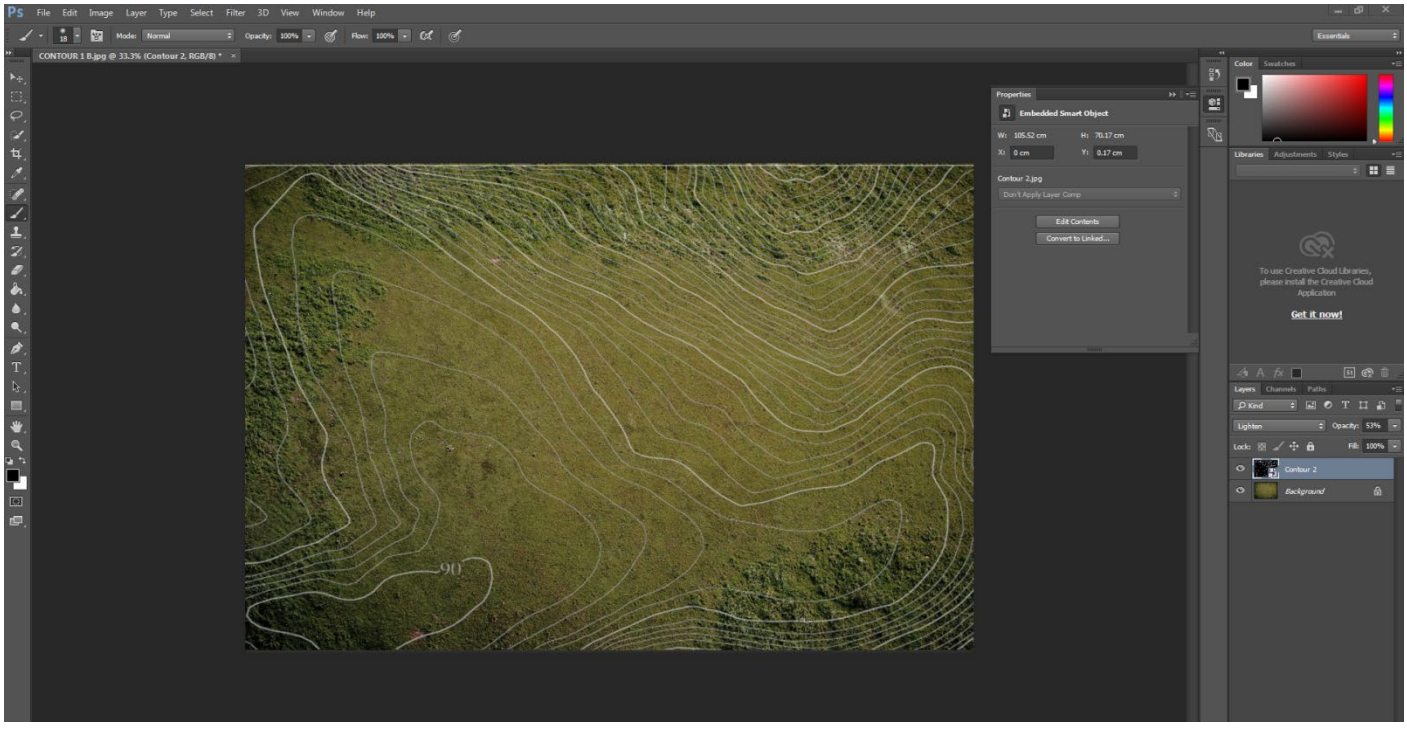
- You will end up with this



- To merge the two images together we are using the Layer Blend tool. This tool controls how layers are interacting with each other. Select the top layer (the contours)/ go to the layer blend bar (in the Layers panel)/ brows options and select “lighten”.

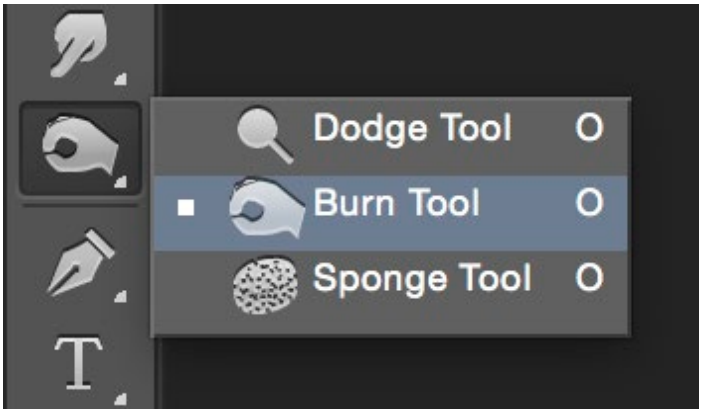


You should end up with this. Now select the contours layer and make it 50% transparent.



- Create an adjustment layer of Hue/Saturation and adjust it to make it brighter.

- We are using now two tools to create the effects below. The dodge and the Burn tools.



The dodge tool lightens areas, while the burn tool darkens areas. Right click to control the size and strength of the brush.

- Use these two tools to create a 3d effect reflecting the contour lines. Be careful and neat as this step is important for a good finish.

- Create another adjustment layer of Hue/Saturation and make the image “calmer” by reducing saturation.

Note: Exposure/colour balance/ Vibrancy/ Brightness and contrast/ photo filters/ curves are all useful adjustment layers. You should familiarize yourself with them: when and how to use them.

The landscape layer is now ready as a background. Save it as a PNG image (a lossless image) and start a new Ps file.

Let us add some urban features to this image (refere back to sections 4.26/4.27):

- Select landscape layer/ Draw a new building using the Polygonal Lasso tool
- Ctrl C/Ctrl V: the new shape is copied to a new Layer. Rename this layer to “Buildings”.

Let us add a pattern overlay to this building:

- Search the internet for an appropriate material like this marble surface for example:

- Open the image with Ps
- Edit/Define pattern

The marble texture is now saved as a pattern.

- Go to your map again/ Select the Buildings Layer.
- Double click on the layer to activate the Layer Style panel
- Check Pattern Overlay and select the Marble pattern you already created.
- Remember: to add any effects to this material you need to rastarize it (right click on the layer [not the thumbnail]/Rasterize layer style)

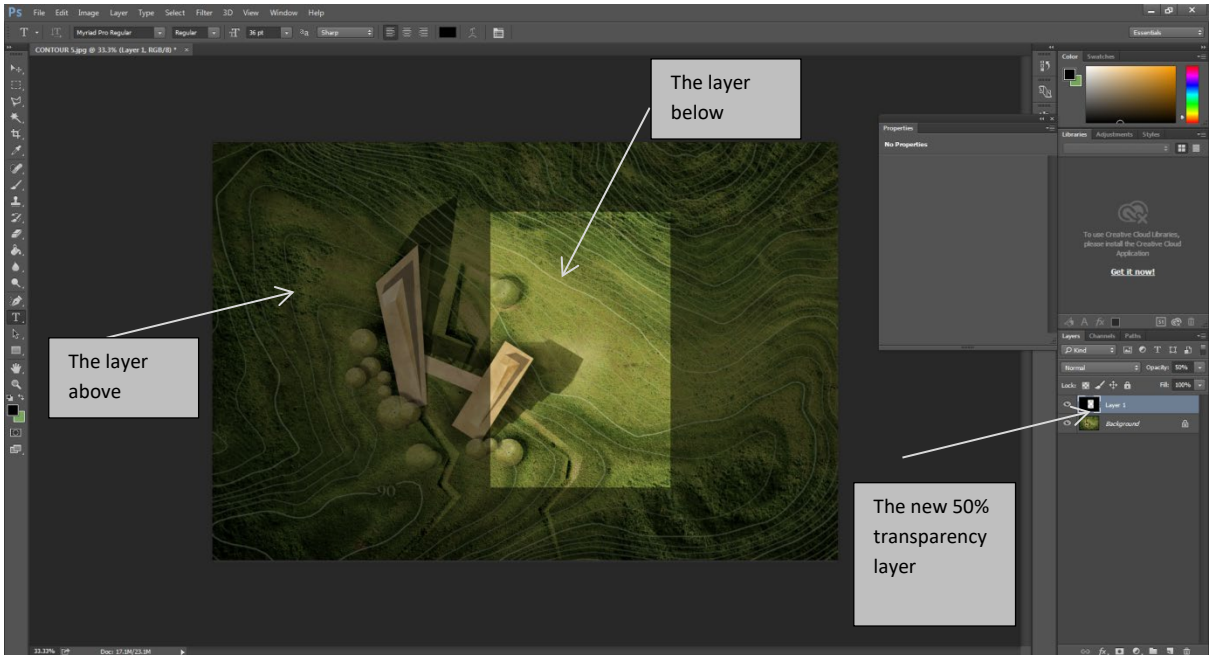
- Refer back to section 4.2.7 to learn how to add trees. Give some trees 20% transparency.

- Shadows and effect are created with the Dodge and Burn tools (see p:39): select the area/use the burn tool to add shadow, the result will be engraving the landscape (Do not permanently adjust a layer, make sure you separate each effect/object on a separate layer)

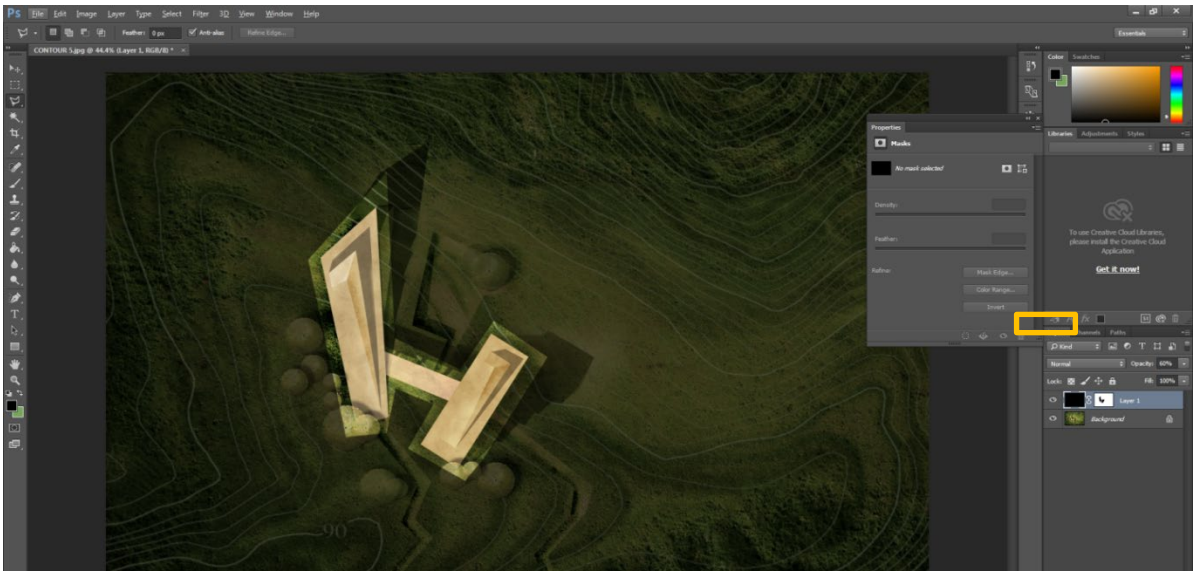
- Add annotations with the Type tool/make the text layer a bit transparent

4.2.10. Creating a night scene:

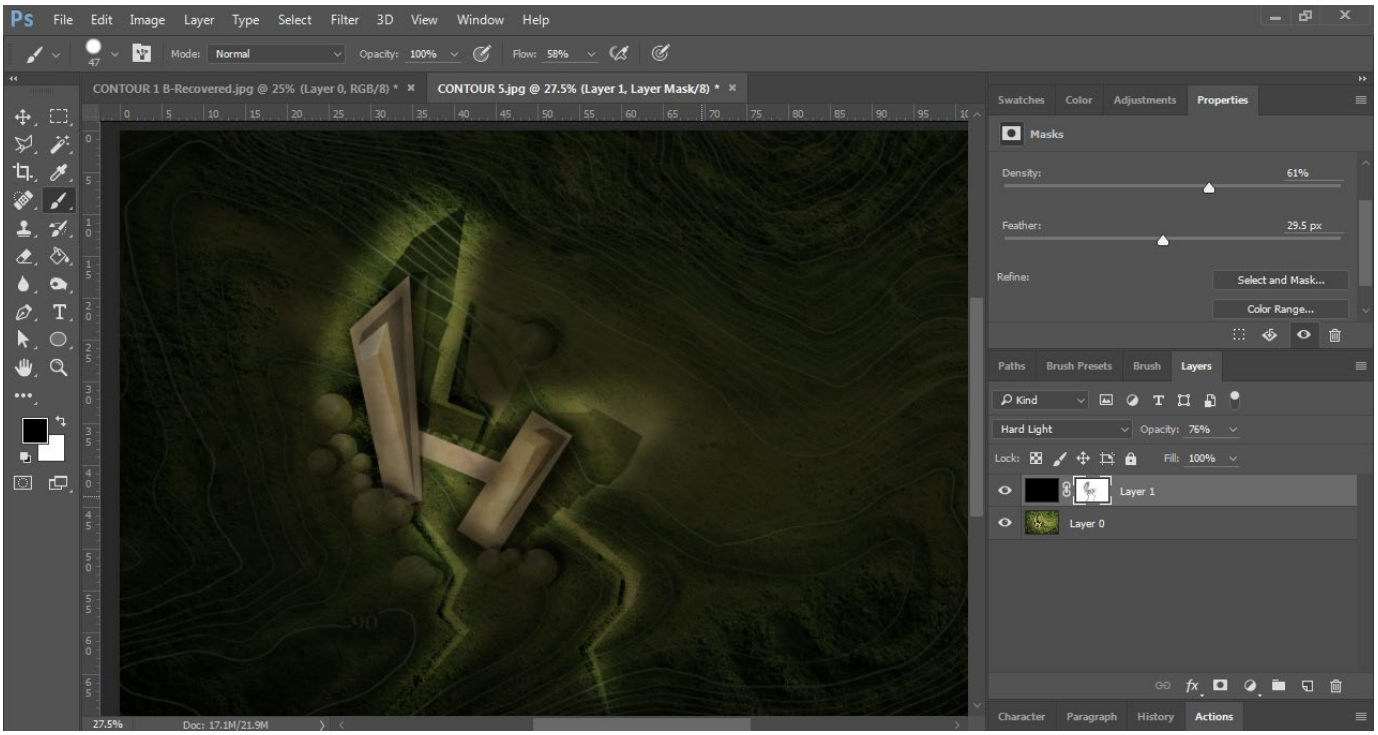
The concept is simple; we will create a new black layer with 50%-60% transparency and position it above the original background. The next step is creating gaps in this layer, the gaps will reveal the layer below and they will look bright.



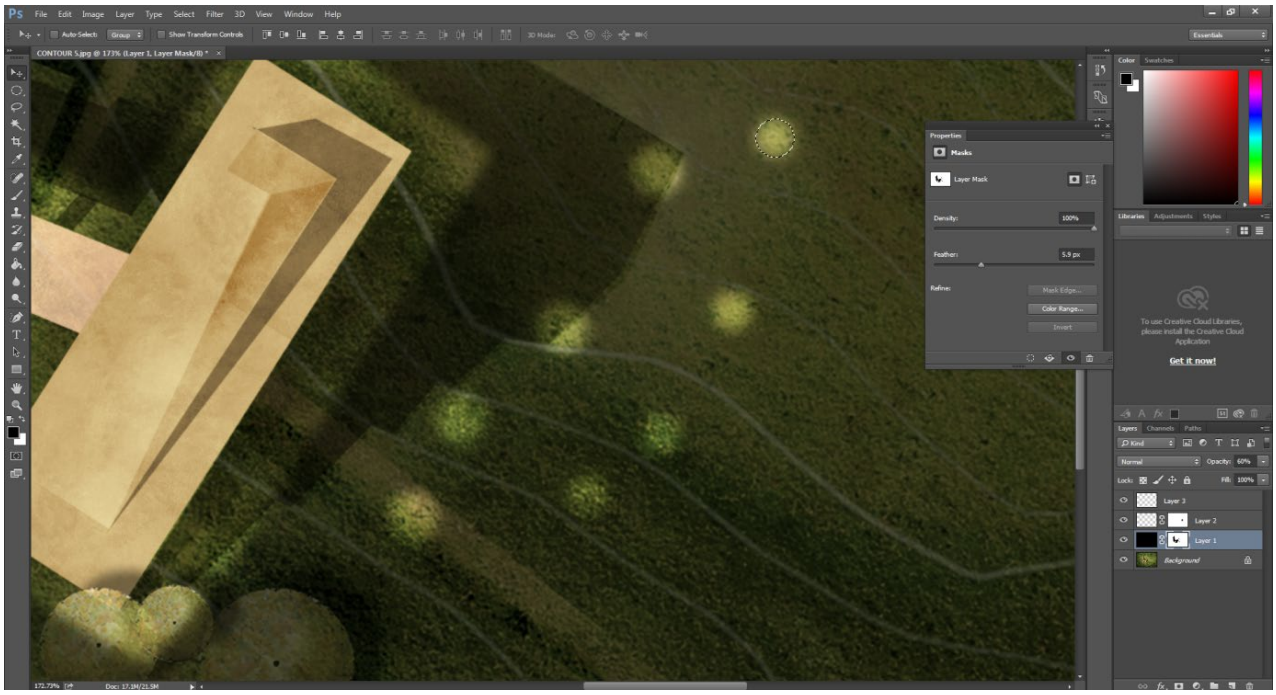
- On the black layer, select the area around the building with the Polygonal Lasso tool
- Create a layer mask/invert it



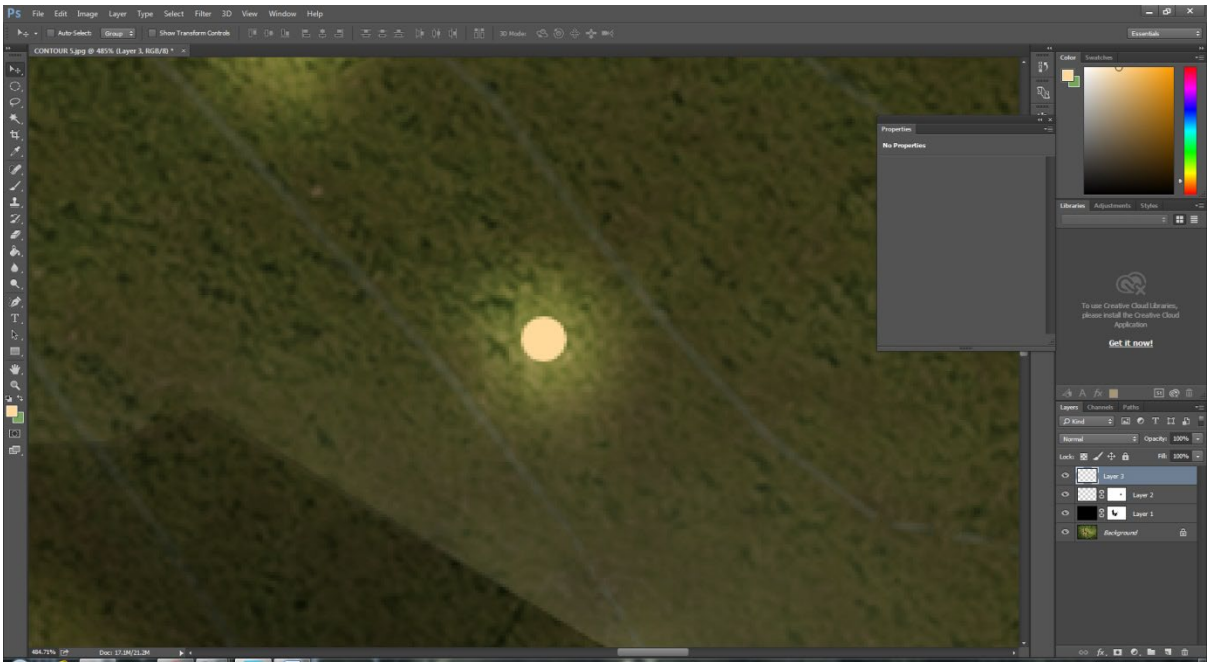
- Increase the Mask Feather



- Use the same concept to create perfect circles at street lights locations



- Create a new layer and draw a circle at the middle of a circle gap. Give it a bright beige colour



- Create another layer of black circles that represent the shadows of the street lights.
- Copy the light and its shadow as needed
- Use the Burn/Dodge tools to add more shadow effects

- Palsy around with image adjustments especially: the brightness/contrast; the hue/saturation; and the image vibrancy.
- Add annotations


Adobe Ps
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