

ROUGH STONE TUTORIAL

Tutorial by Philip Klevestav

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INTRODUCTION

In this tutorial I am going to go through the steps you could use to create a rough stone material. At the bottom you will see the end result and a download link to the .PSD file containing the texture files in this example.

I used Zbrush, 3DS Max and Photoshop for this example.

HIGHPOLY

The highpoly will be the base of the normal map in this example material.

It does not necessarily need to be made in Zbrush or another sculpting program, such as Mudbox. You could achieve a similar result using CrazyBump for example. I chose Zbrush to demonstrate some useful tools I usually stick to when working with these type of materials.

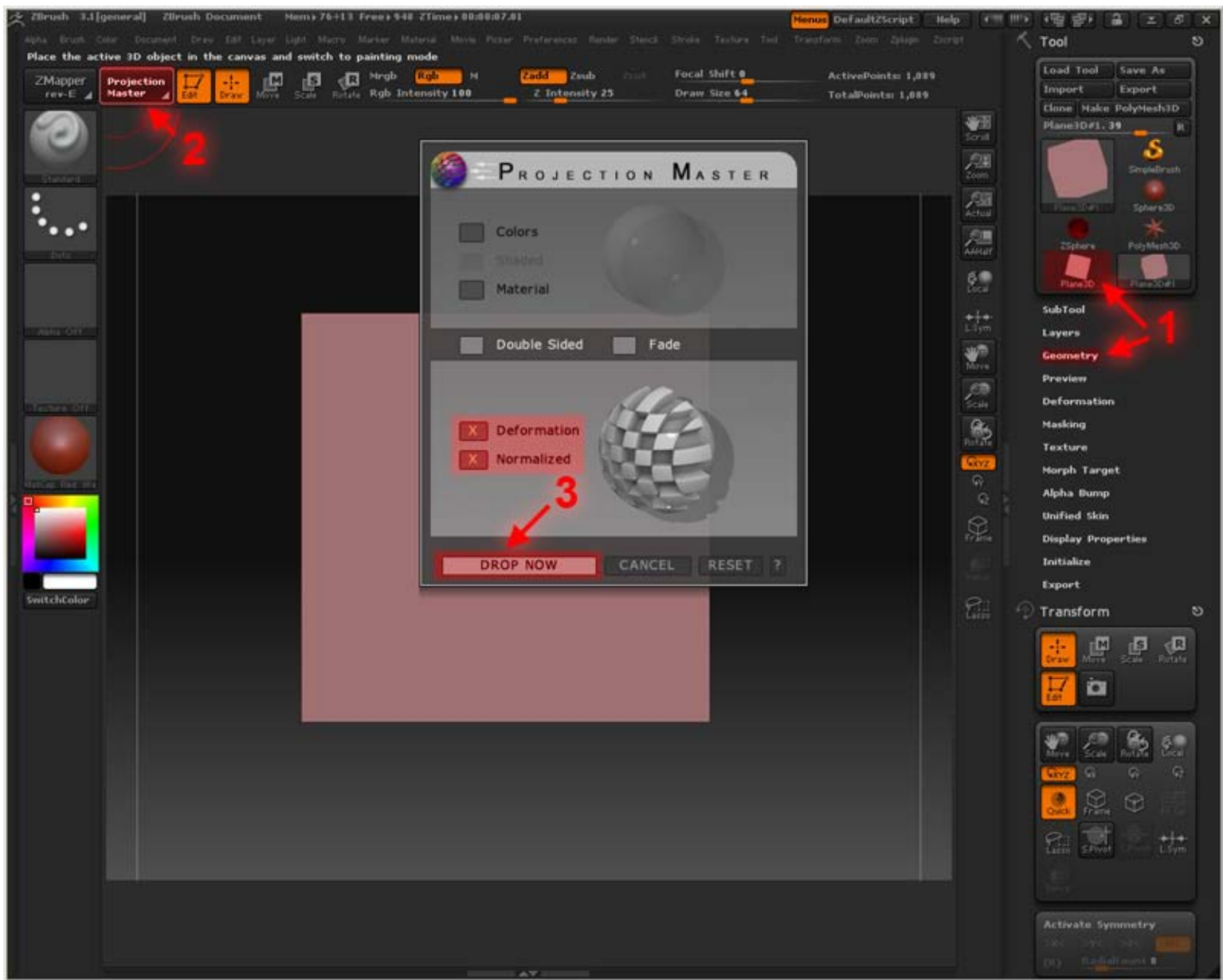
First off, check out the area marked with "1" in the image below.

You will need a simple plane to start from, either use the built in 3D Plane in Zbrush and press "Make PolyMesh3D", and straight after that hit edit so it becomes an editable 3D object rather than a background bitmap. Or you can just export a tessellated plane from 3DS Max/Maya and import in Zbrush.

After that depending on how tessellated your object is you may need to open up the geometry toolbox and press divide a couple of times (uncheck smoothing if you don't want the corners to become rounded).

I tend to be a bit afraid to start detailing a big flat plane without any information at first. So I usually start by adding some subtle Projection Master details quickly, so click the "Projection Master" button (2).

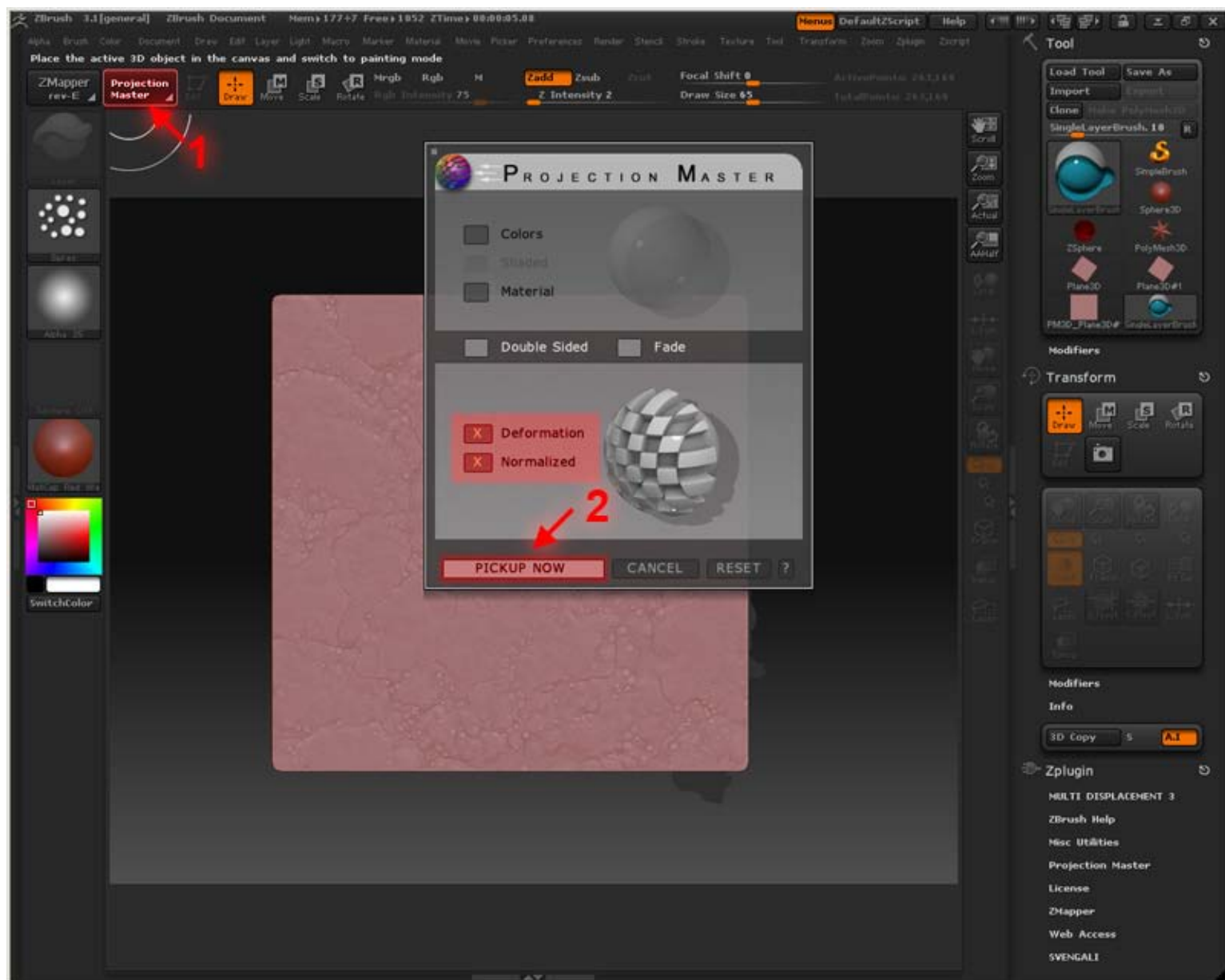
Make sure to uncheck everything but "Deformation" and "Normalize" and hit "Drop Now" (3).



When in Projection Master mode you can not rotate your mesh. Think of it as a detail layer you paint which is then slapped on top on your mesh in the direction your object is currently rotated in.

I usually use a pretty soft blob in the Alpha setting for my brush and spray and a low Z Intensity. Then just go crazy spraying, try various alphas and play around with Adding or Subtracting the detail.

When you feel happy enough with the result, hit the Projection Master button again (1) and press the "Pickup Now" button while making sure Deformation and Normalize is still checked (2).

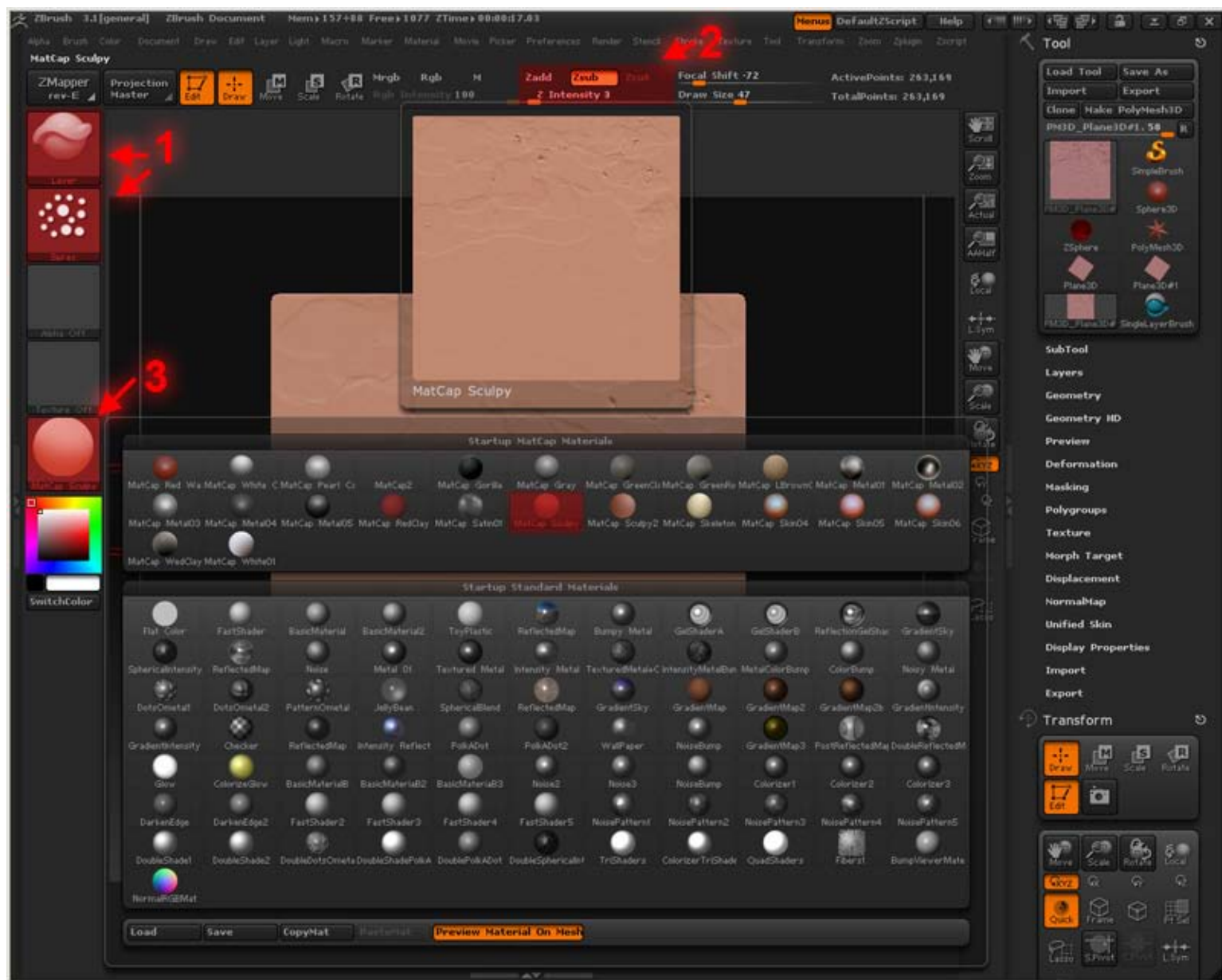


Now it's time to start adding some deeper detail, after the Projection Master pass I usually feel it is a lot easier to start adding more deep details. There are a lot of different premade brushes you can use, or you can create your own/use your own alphas with the brushes. For this one I just decided to go with the "Layer" brush and use "Spray" mode for that brush (1).

Once again I use pretty low Z intensities, and play around with both ZAdd and ZSub (if you are in ZAdd you can alt+press to toggle to ZSub and vice versa) (2).

I also find it more representative to use a more matte material to "dare" to add deep enough details that will actually be seen when rendered out (3).

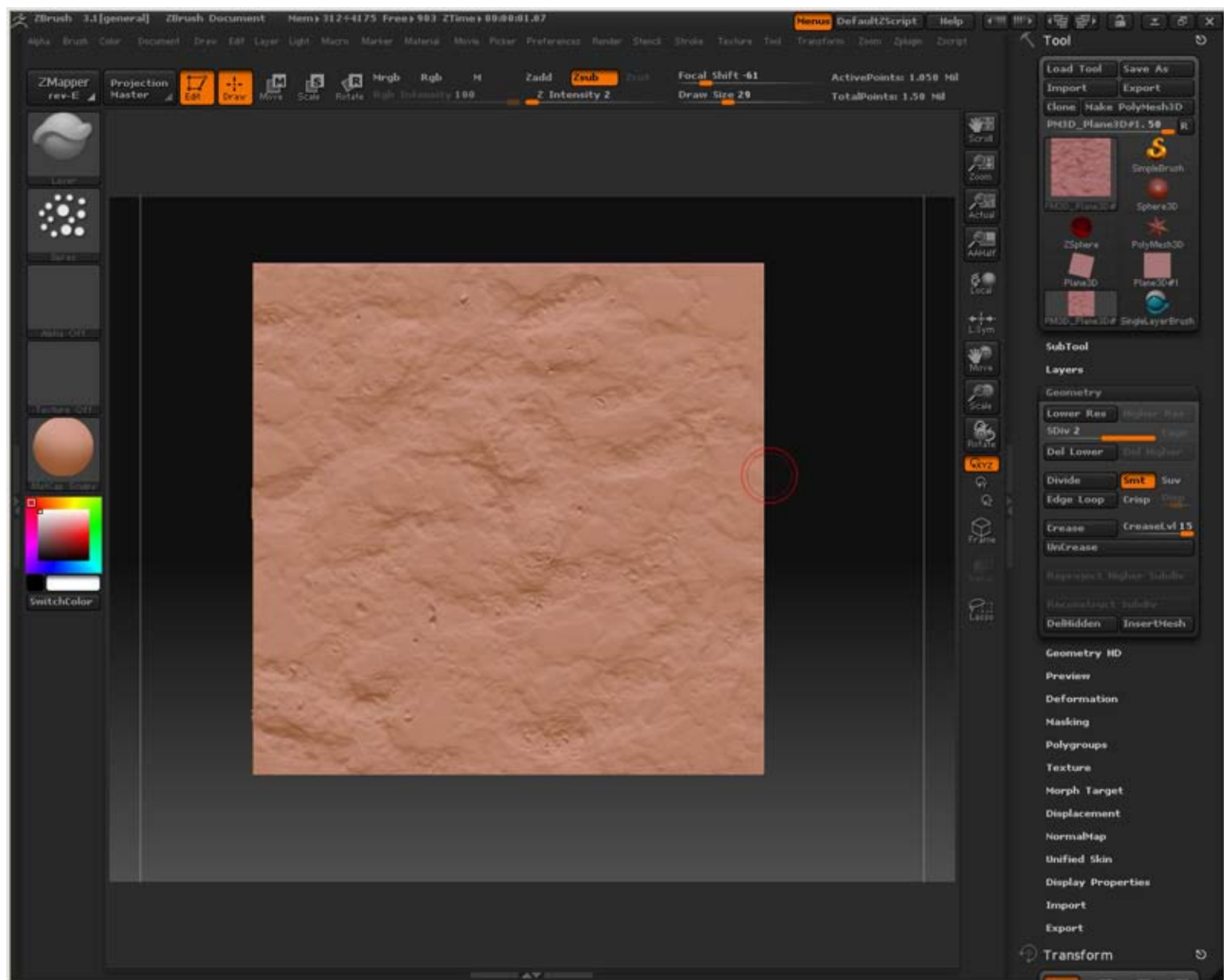
After this you basically brush on if you are in ZAdd mode you can start ZSub on top of what you sprayed and go over the same procedure until you feel happy with the result.



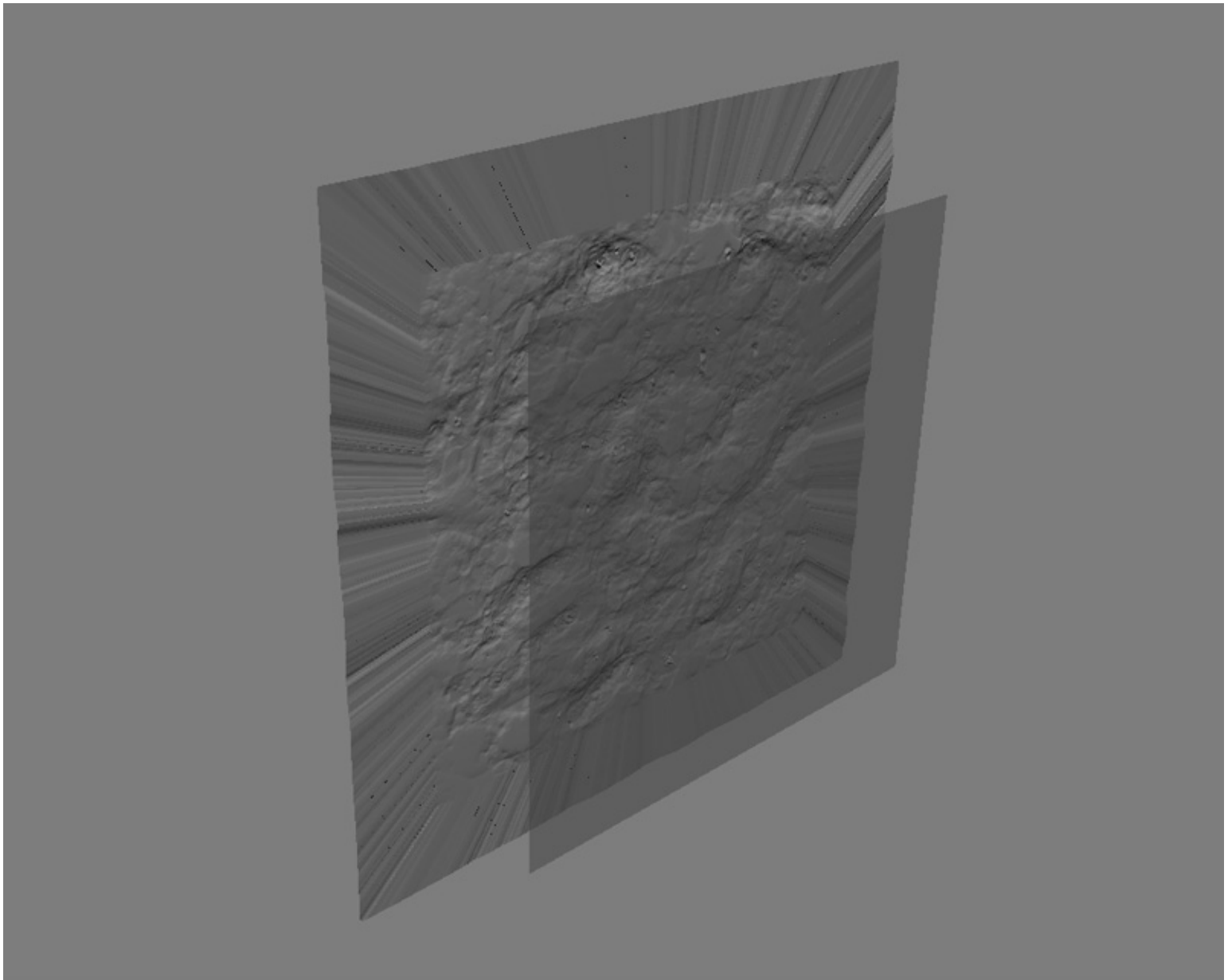
After some brushing for a couple of minutes mine looks something like this, should be enough as a base.

IMPORTANT: You need to really think about what the end resolution of the texture will be and add details accordingly. Mine will be a 512x512 texture so no insane detailing was necessary.

I find it working well to work very zoomed out to start with and go in more and more as you add details. That way you can stop zooming when you feel you have hit the pixel size detail for your end resolution, no use adding details that will be less than one pixel big in the end.



After this I export my ZTool to an .OBJ File and import it in 3DS Max. I selected the border edges and extruded them to get rid of any ray misses when baking. Then I create a plane the same size and bake the highpoly to my lowpoly plane.



LAYERING

Here is my base for the diffuse, just a little edited photo reference.

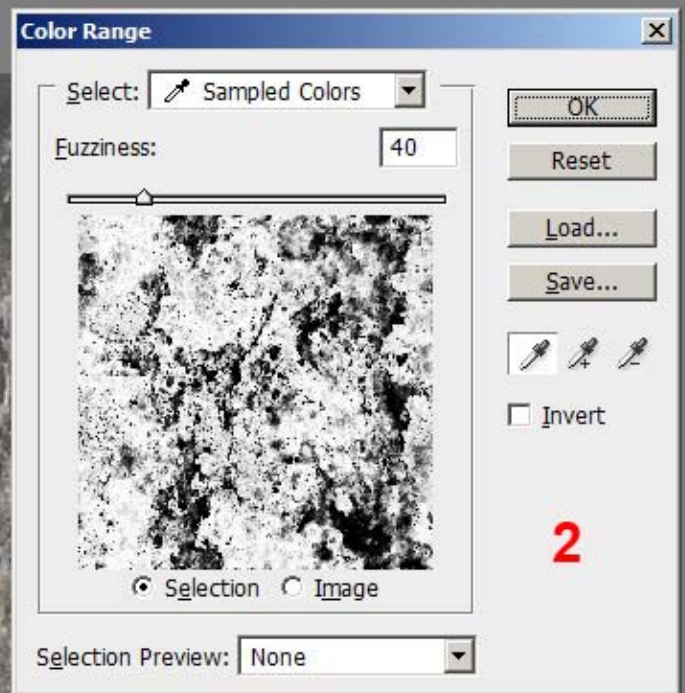
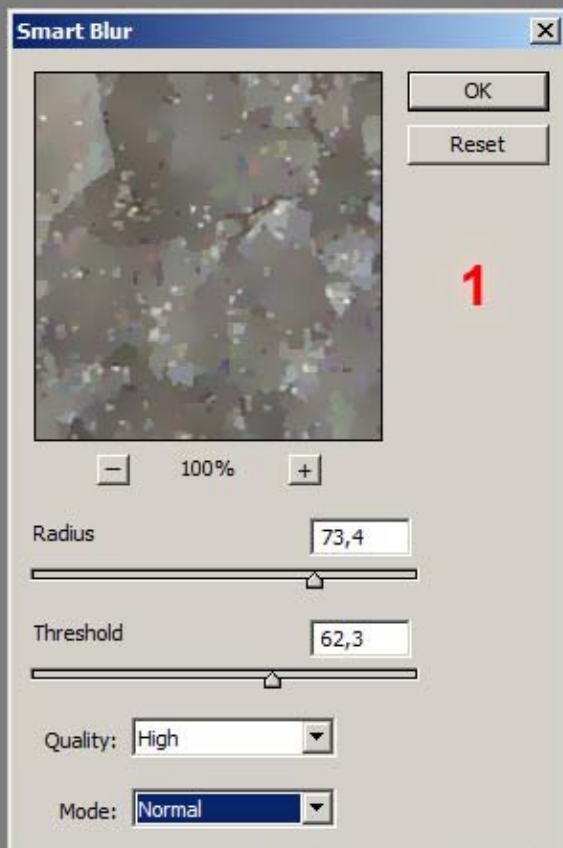


As I said previously I was just going to use my baked out normal map from Zbrush as a base for the final normal map. So I want to create a couple of additional normal map layers I can overlay on top of my base.

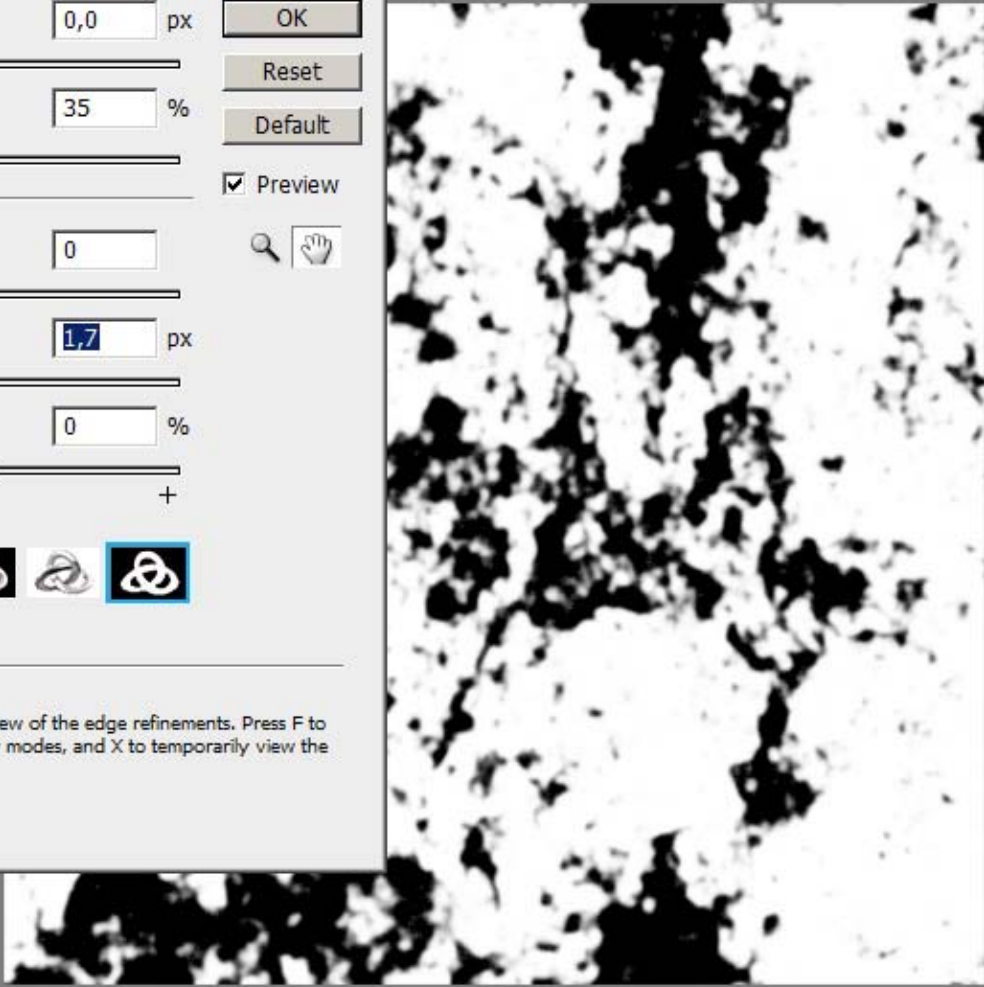
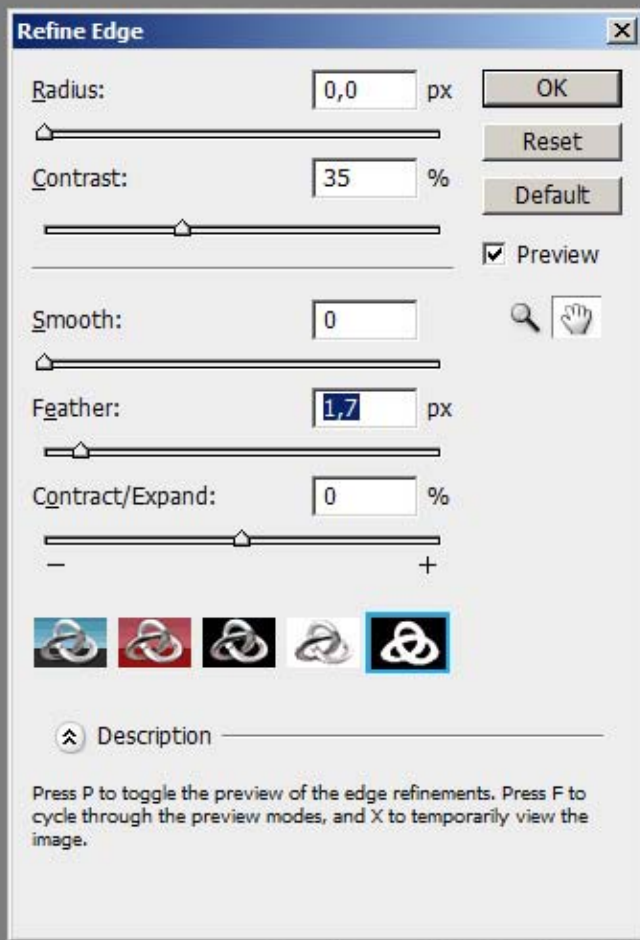
I tend to use "Smart Blur", "Surface Blur" and "Color Range" (Select > Color Range, you could just as well use the "Magic Wand" tool if you prefer that) a whole lot when creating masks and smoothing out layers for among other things normal map overlays.

Another good idea when working with normal map details like this is to work in a higher resolution than your end result will be in if possible. Especially if you will use the NVidia normal map Photoshop plugin.

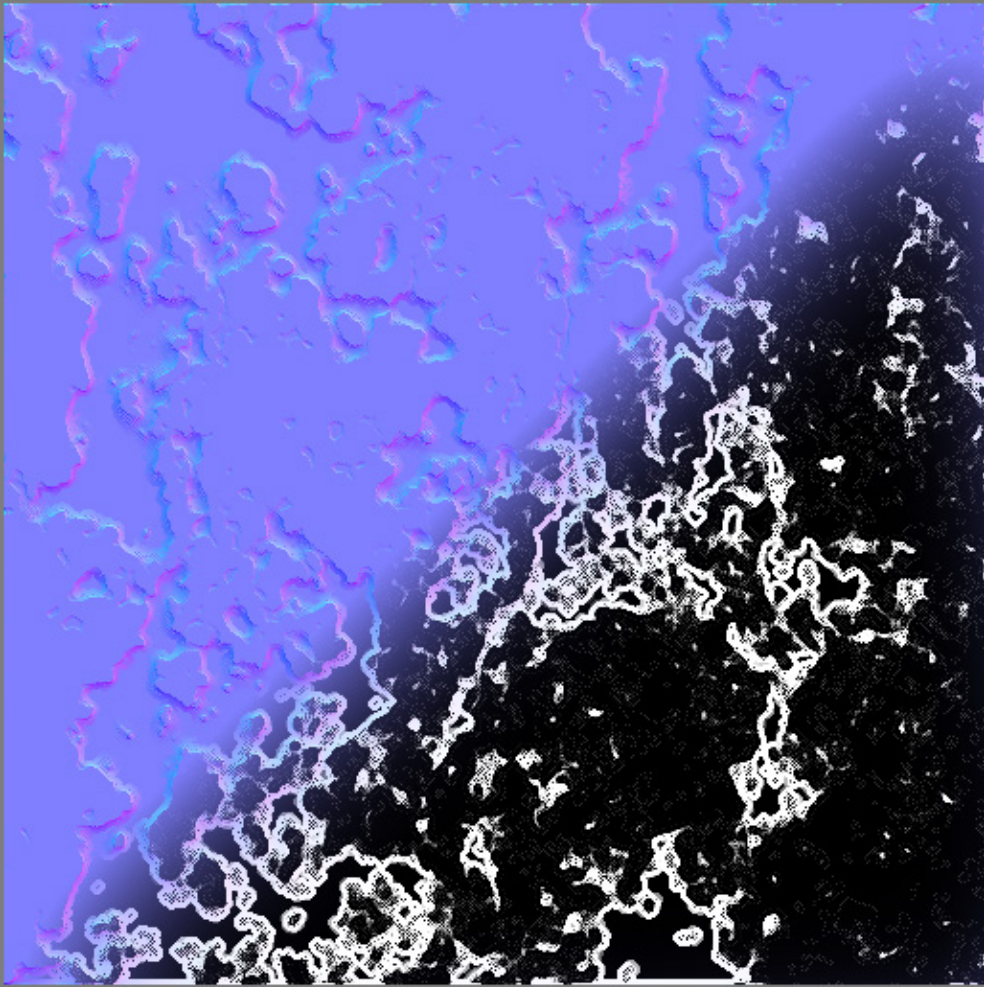
I smart blurred my base and set the blur to about 50% fade (1), after that I used Color range on some of the brighter parts to get a nice mask to work from (2).



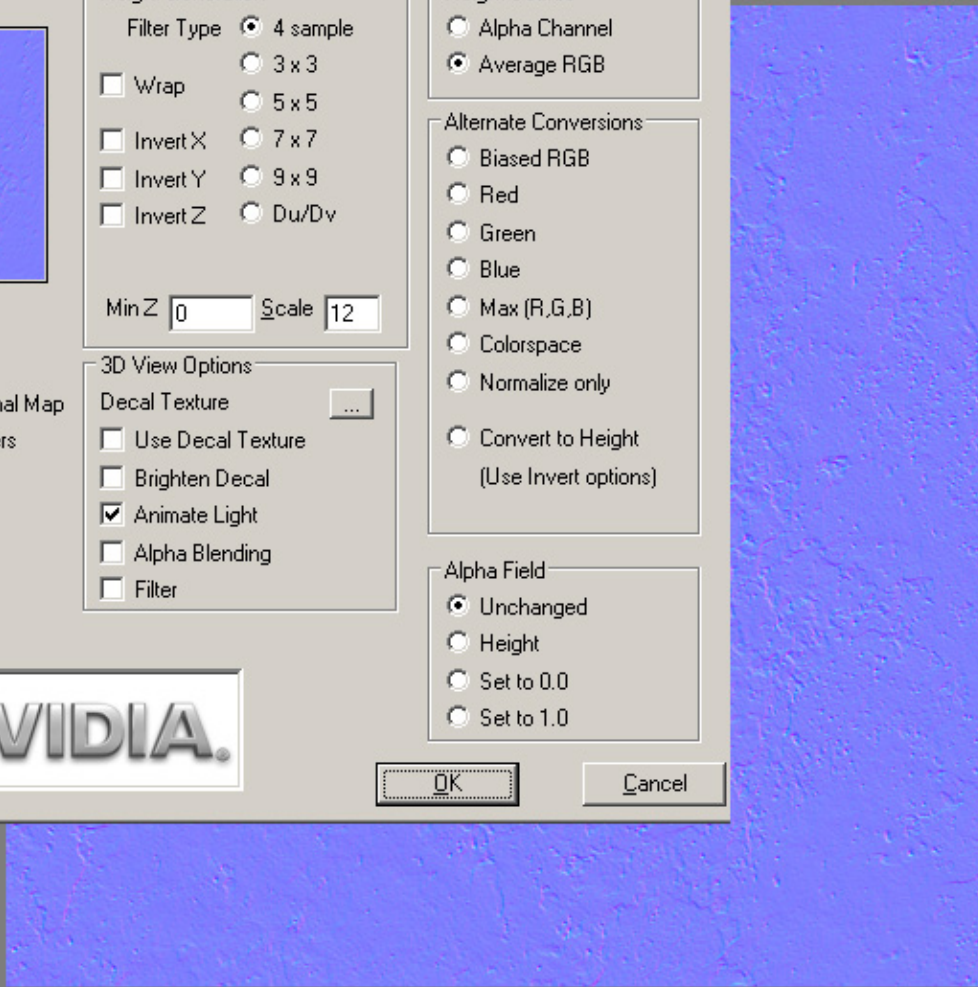
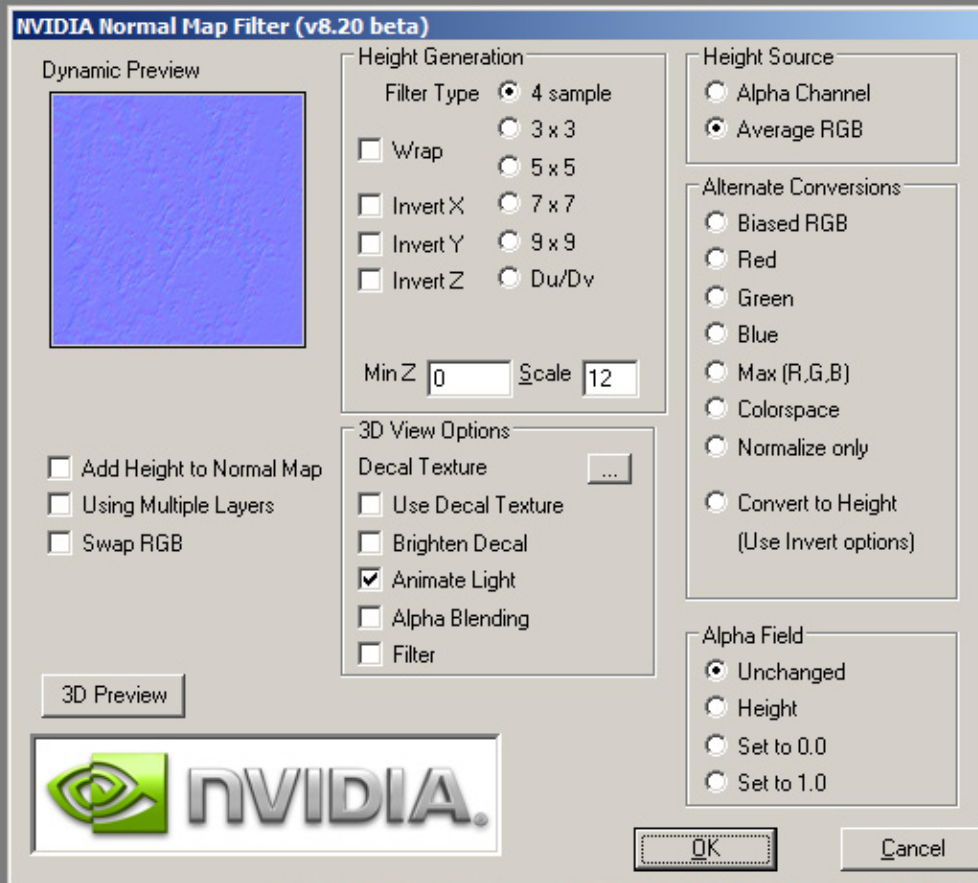
If you think your mask gets too noisy you can always make a selection of the white (or black) parts and use "Refine Edge".



This is a deeper overlay layer I achieved by using the NVidia normal map filter and a white and black layer such as the previous one. After that I masked the result as seen in half of this picture to get some sharper edges.



The image below is just the normal map filter applied to a slightly smart and surface blurred base to get the finer details.

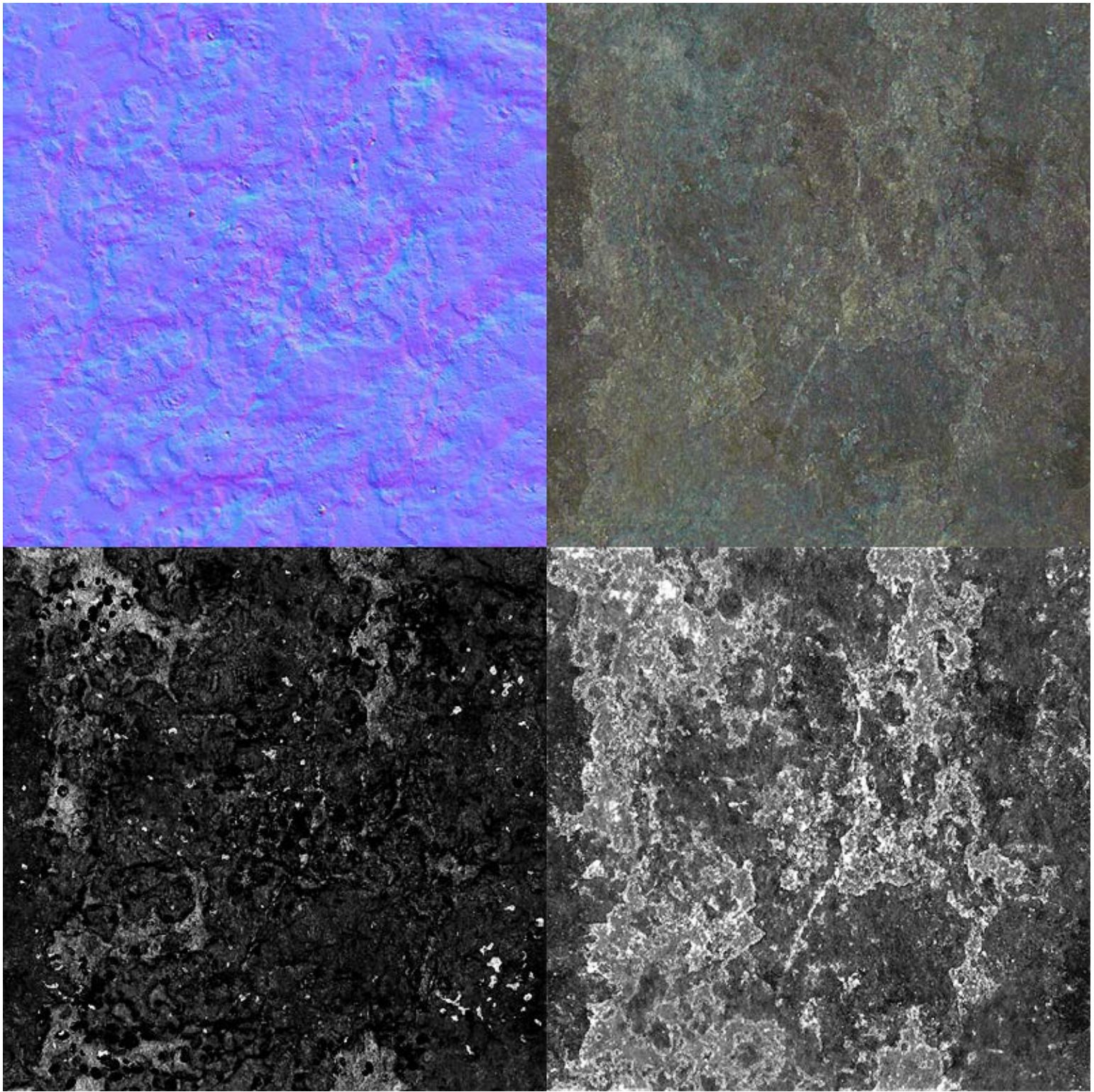


In the top left in the image below is the final normal map combined with the Zbrush base and the photoshop overlays.

The diffuse map on the top left is very anonymous, could easily be exaggerated more both contrast wise and color wise. I basically color matched the base I had and added a layer of the original that I masked with one of the masks I created for the normal map overlays.

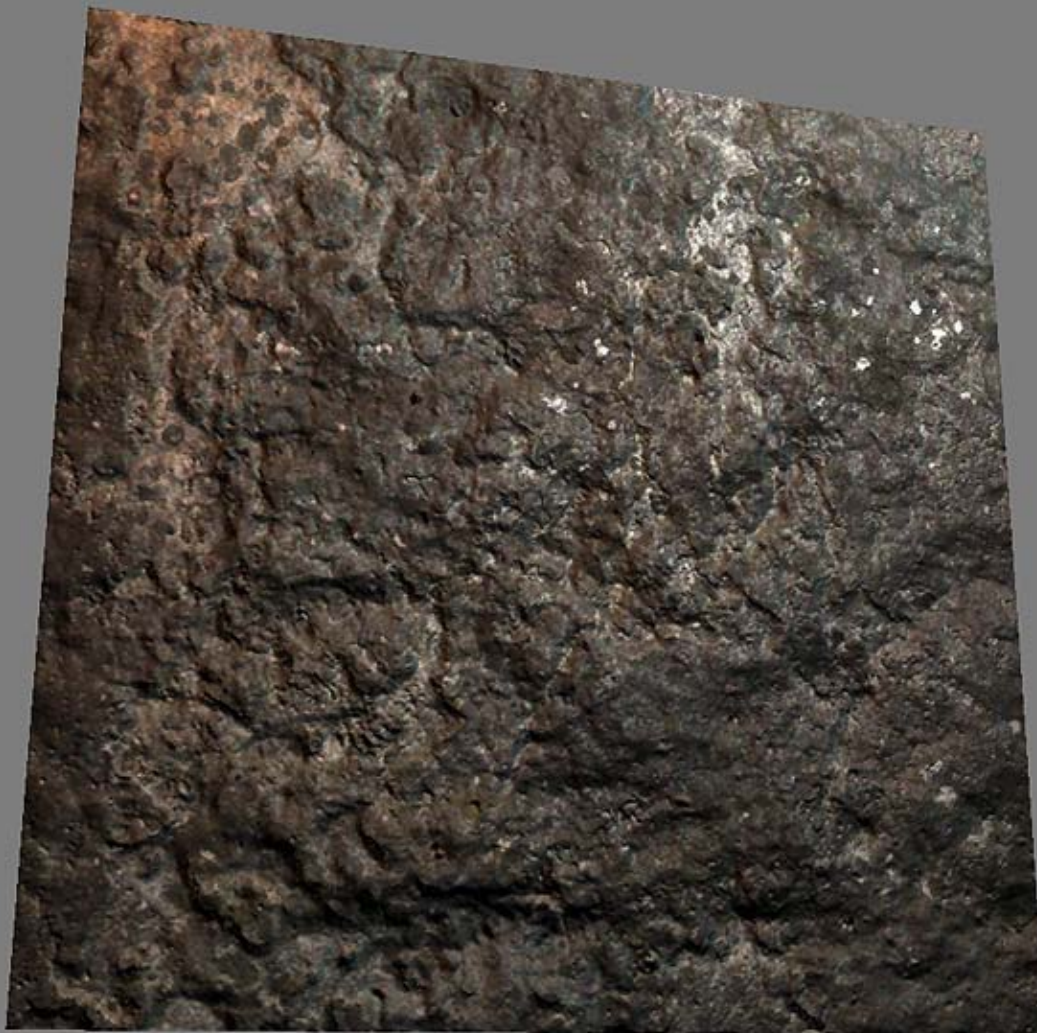
The specular map, bottom left, is a contrasty version of the diffuse, with the blue channel from the normal map multiplied and slightly blurred on top to get rid of some aliasing spec lines on the normal map edges. I also added a couple of very bright dots around to get some highlight hotspots to achieve the "chrystal sparkles" you can sometimes see on such stone.

Last is the Glossiness map on bottom right. I decided to make the indented parts feel a bit more wet by making those brighter. Make sure to never go down to absolute black in the glossiness map or you will have a constant specular highlight there (in most engines).



Here is the end result, a semi sharp rough stone surface.

[Download the .PSD](#)



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