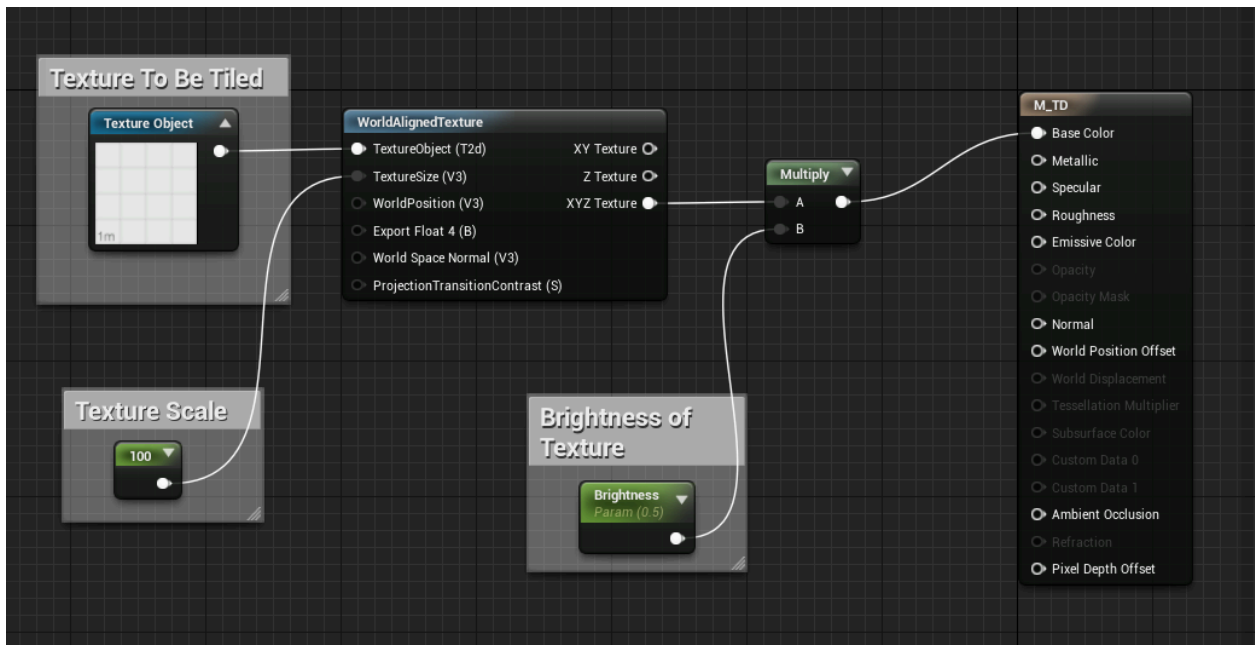
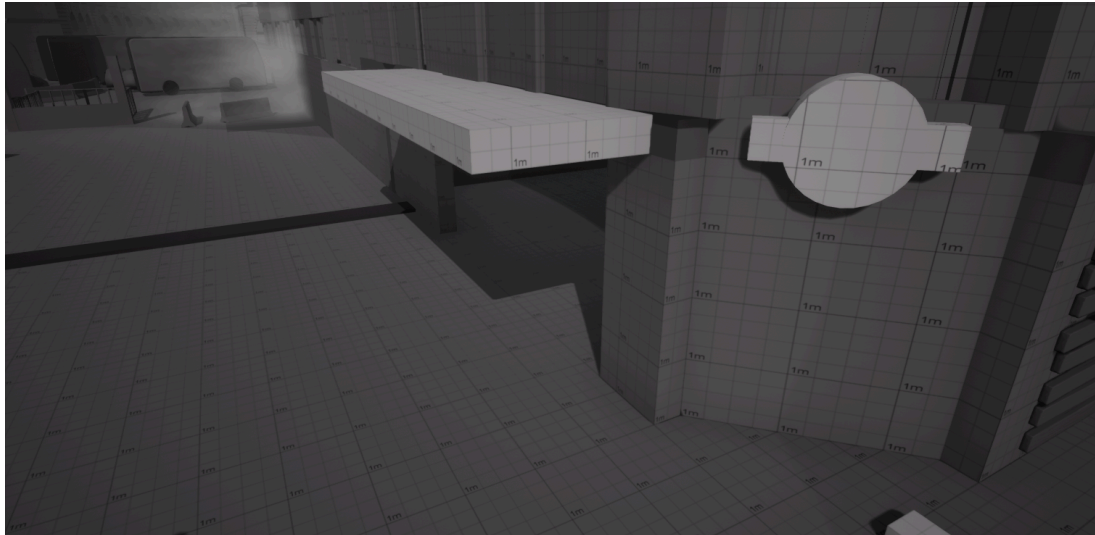


# Dystopia Inc Tech Guide, Haydn Roff

Welcome one and all, first of all I want to say well done, and thank you for bothering to read this. I promise if you read the whole thing, it will be easy and straightforward to use the following, blueprints, materials and particle systems, without too much hassle.

## 1. $1m^2$ Grid for the Blockout

This is what it does



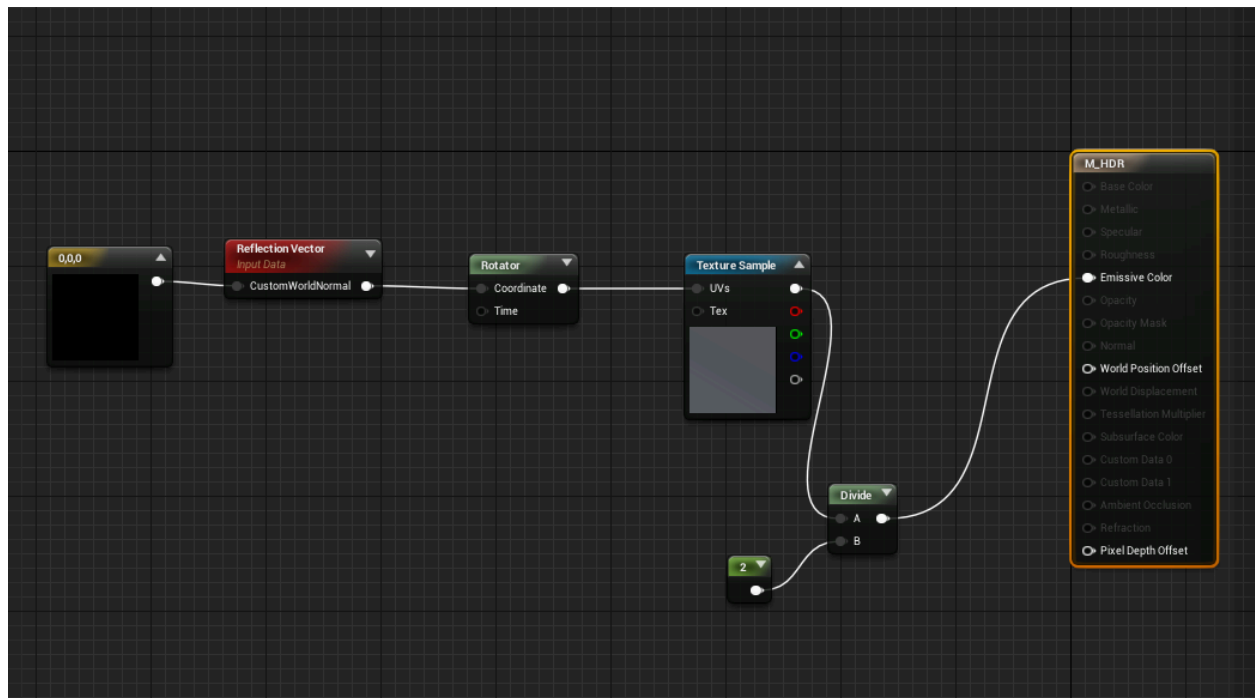
Basically, Fabrizio, made a beautiful 1m grid in illustrator and Juriaan told us about the spicy world aligned texture node (after I'd made a way more complicated and less efficient version). Input a texture to be aligned, have some sort of sense of how large you want it to be in the world, easy here, 1m wide and high. Scale that texture, units in cm, 100cm = 1m so we need a scale of 100. World aligned texture does all the work of projecting it in world space. And as Briz made a beautiful white grid, we have a parameter for brightness, so the default is mid grey, and you can use an instance of the material to control how bright it is, hence the brightness control.

## 2. Sky Spheres

We have two sky spheres in our scene, one for the main sky and one for the clouds. Unless you are Briz, Cat or me, DO NOT TOUCH THE SKY. Thank you.

How it works:

It's a rotated HDR that is having its reflections calculated and being projected across the world. We have a second sky sphere with the default clouds rotating at a slightly higher speed in the same direction closer to the player, to create interest and parallax.

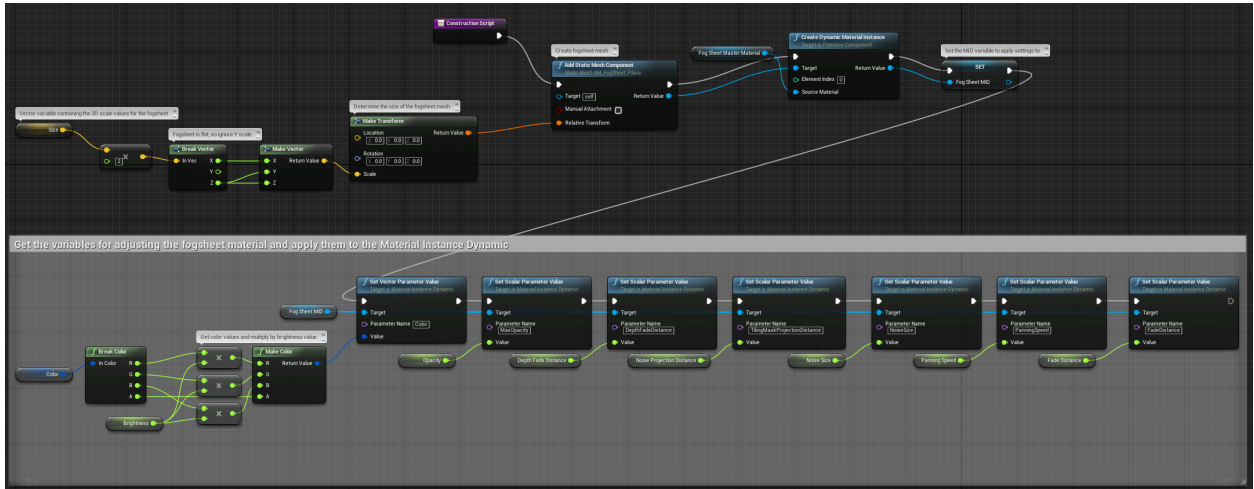


That is the HDR material, please don't touch it guys.

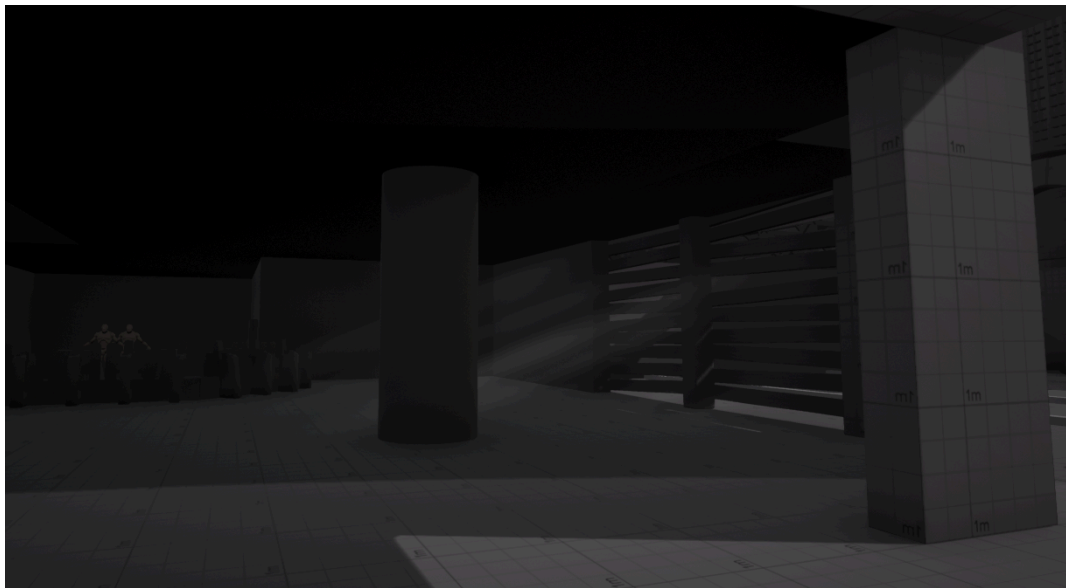
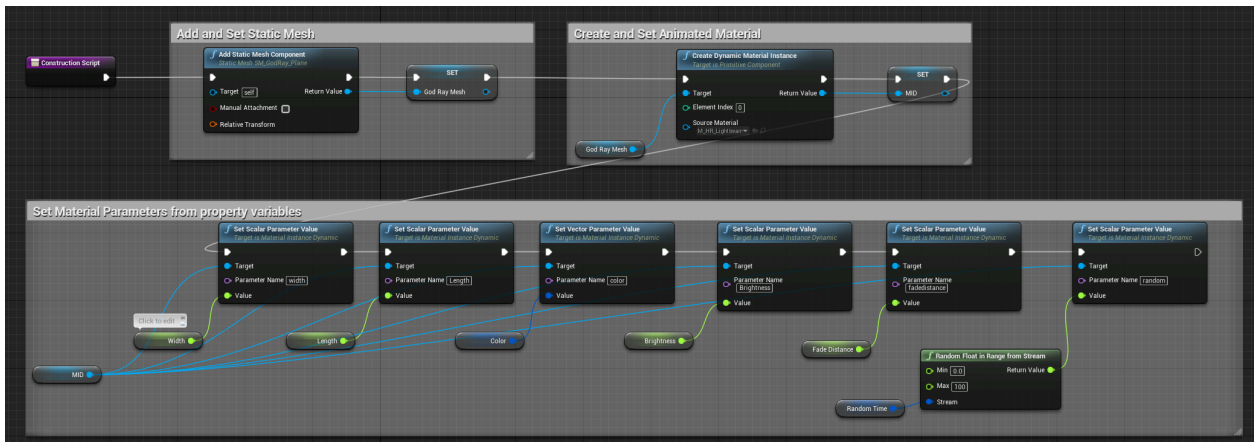
## 3. God rays and Fog Sheet

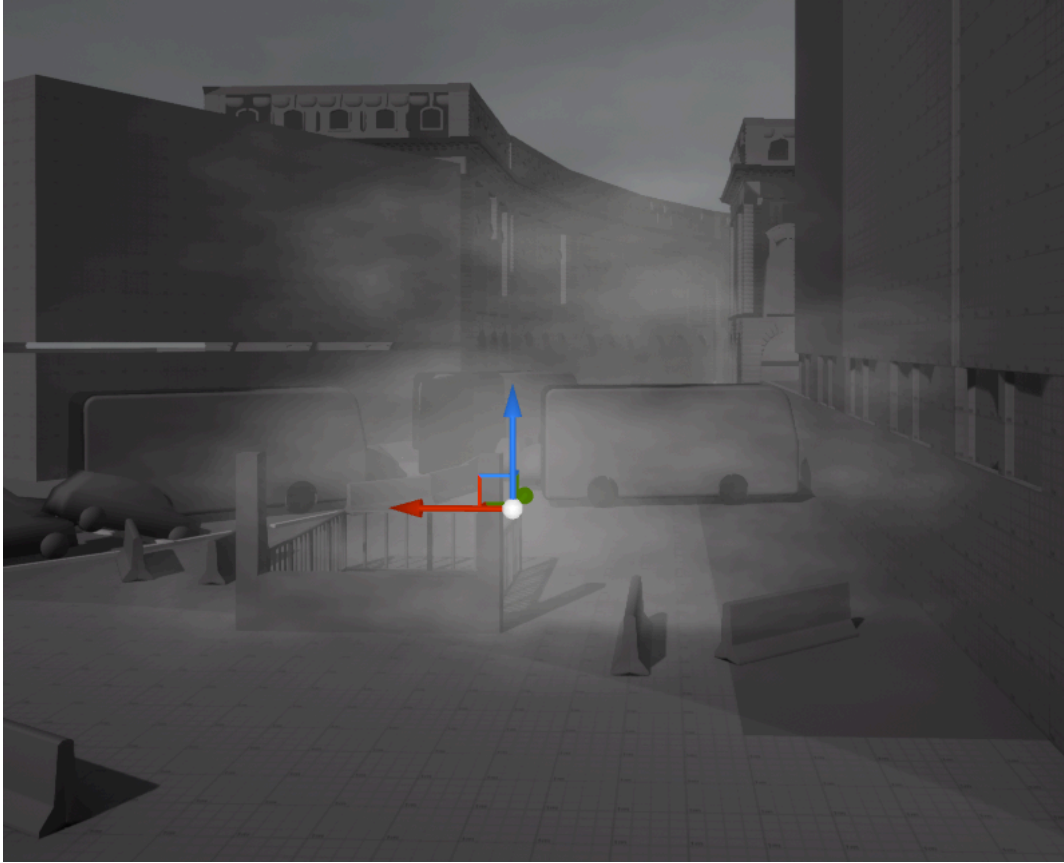
Cat and I worked on a couple of blueprints to help try and bring some more mood and atmosphere to the lighting. She started a fogsheet and I made a lightbeam, and we managed to eventually get them looking quite nice.

# Fogsheet

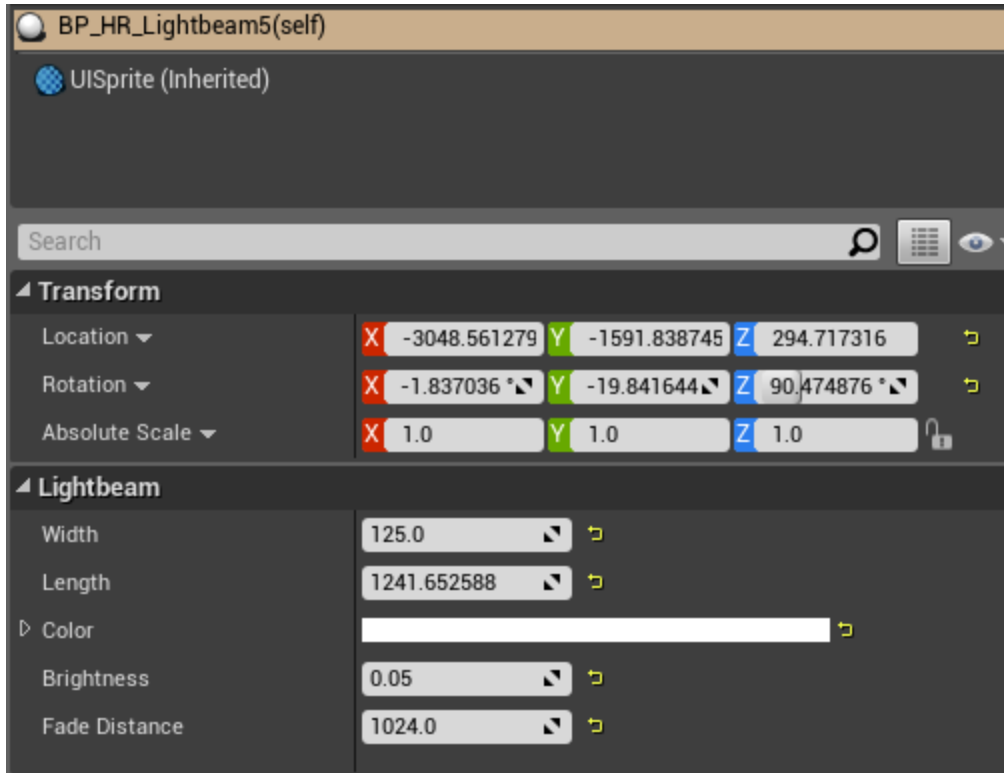


# Lightbeam(Godray)





To place them in the scene, drag in the respective blueprints and place them where you'd like them. I will now explain the controls.



For the lightbeam, the size of the Card and so the lightbeam, is controlled with the Width and Length inputs. The above setting are for the picture I provided. Color controls the color of the light, don't go to crazy, an off white is the most sensible here. Brightness controls the intensity of the god ray effect, don't make this too high, less is more! Fade distance is to do with how quickly it fades out when approached by the camera, the default should normally be correct.

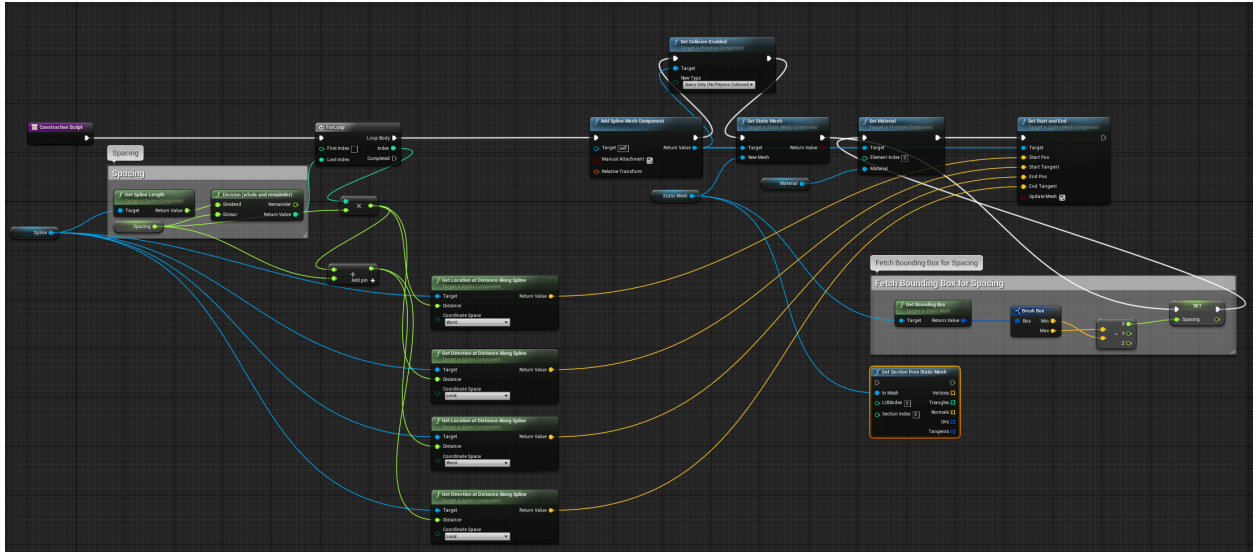
The fogsheet being a collab, led to a slightly different control set, but still very friendly!



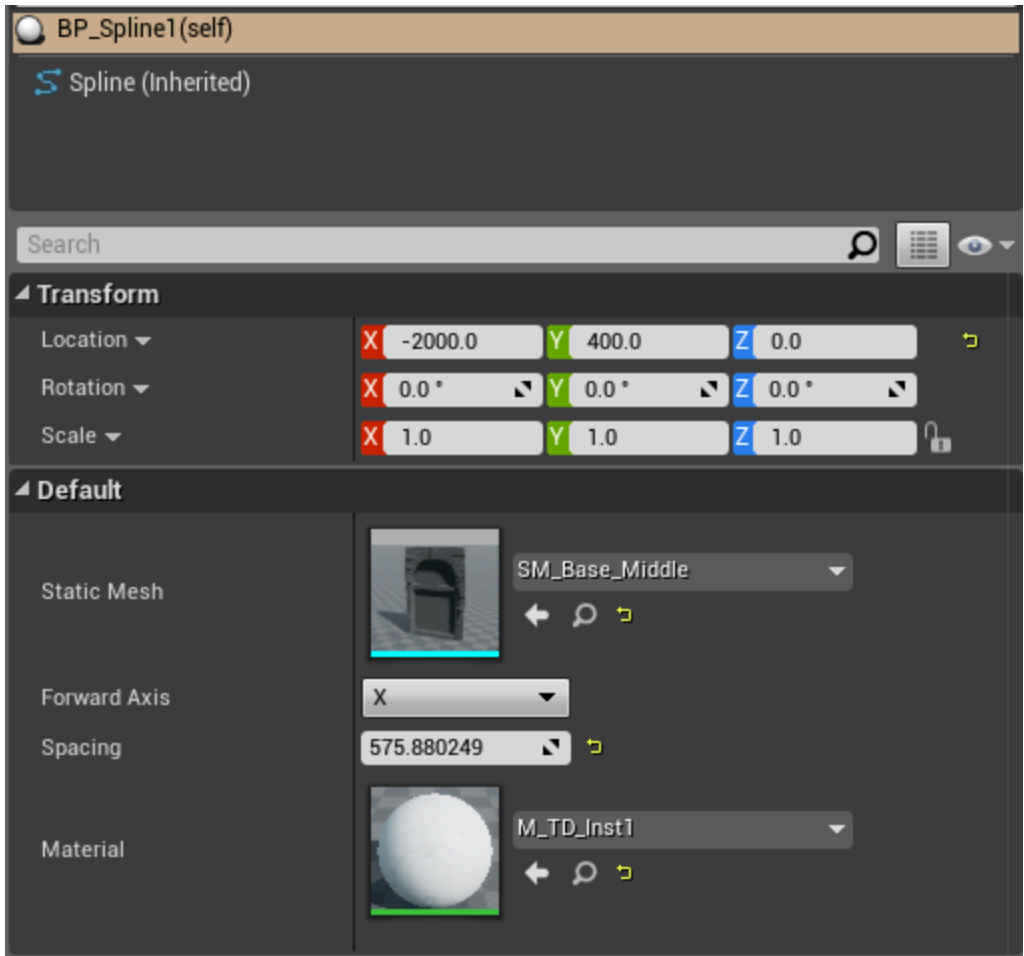
Color controls the color, brightness the brightness, opacity the opacity. Fade distance changes how quickly it fades when you go near it, but it needs more control than the god rays. Panning speed should be fine, but you can lower it, any faster than 0.01 is unacceptable.

#### 4. Spline for Buildings

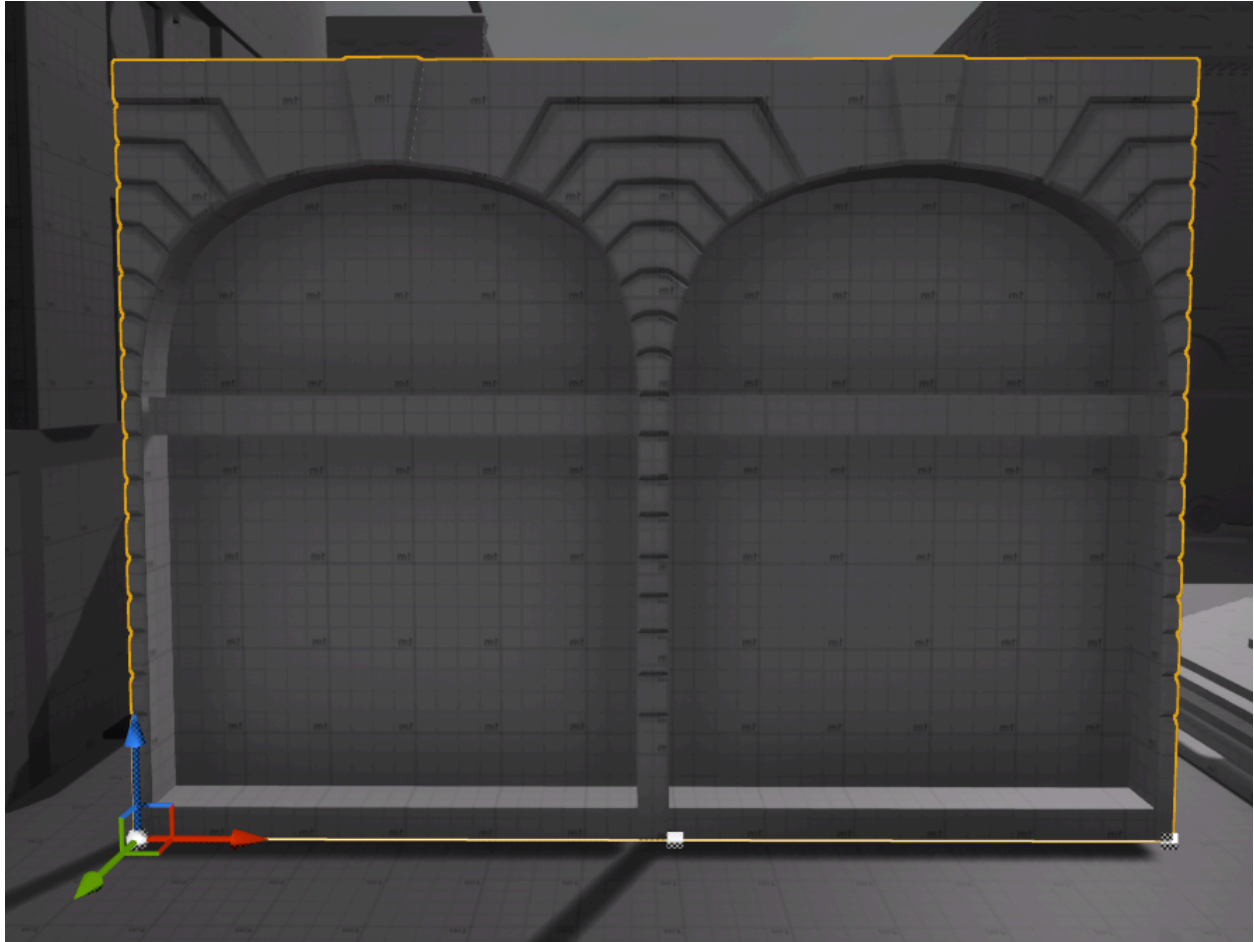
This is probably my least friendly blueprint in the scene. I would say learn the controls but not how it works unless you want to be a technical artist.



Controls:



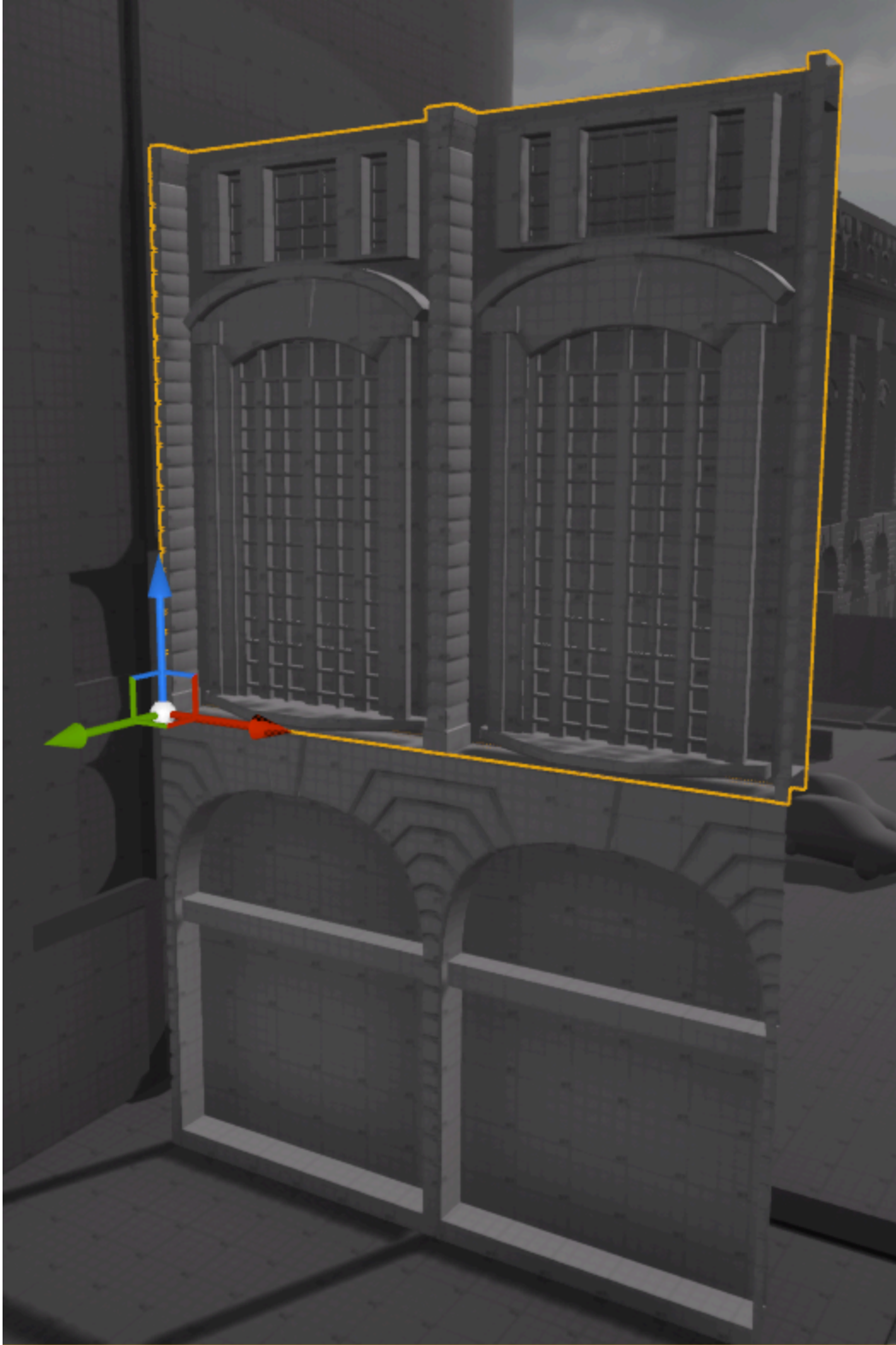
You can update the mesh, in the static mesh section, the forward axis should be X or Y depending on where it was facing in Maya when it was exported. Spacing will update automatically thanks to the Blueprint. You can also edit the material.



Once you have placed the BP in the scene, you must select the white squares not the whole BP to edit the spline, drag out the spine as far as you like, and end it at the end of whatever number of meshes you need. To curve the spline you will need to add points, you can do this by selecting the white square and holding alt when you move it, this can be placed and repeated, as in the above picture.

TOP TIP:

Layout the bottom level, then duplicate the blueprint and swap out the mesh, as in the example below! **WARNING:** If our assets aren't properly modular, this approach wont work!




Spline example

## 5. Interactive Foliage




[Gif of it working!](#)

Mesh

Skeletal Mesh  SimplePlant1Rigged

Materials

Element 0  Grass

Physics

Simulate Physics

Linear Damping 0.01

Angular Damping 0.0

Enable Gravity

Constraints

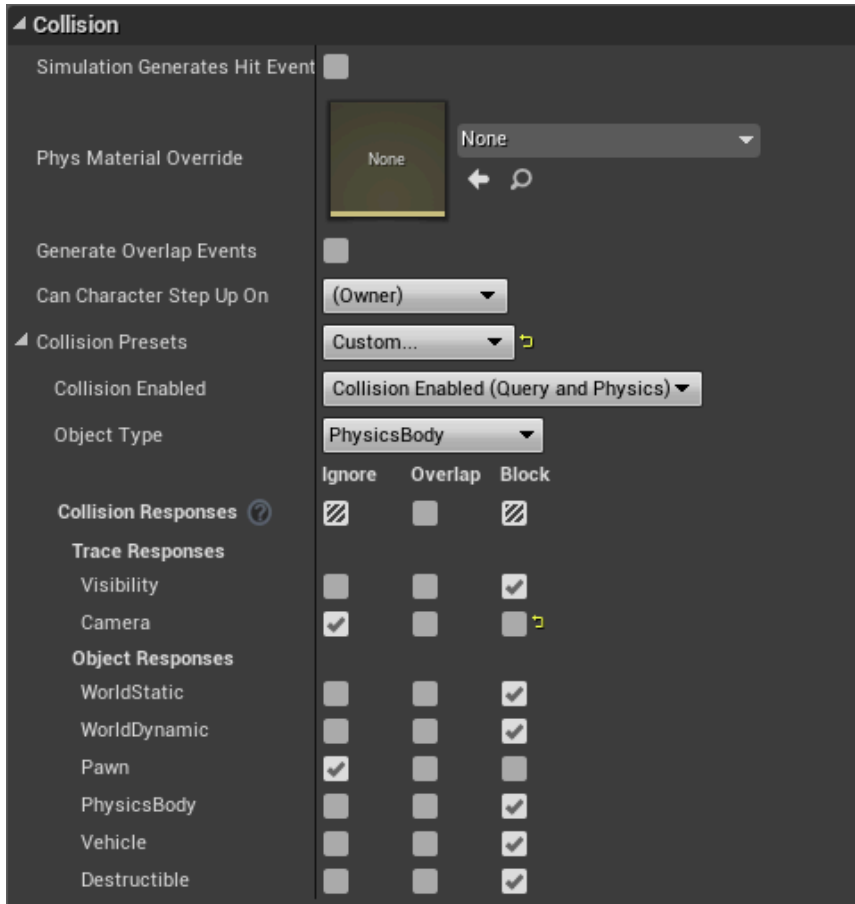
Physics Transform Update Mode Simulation Updates Component Transform

Ignore Radial Impulse

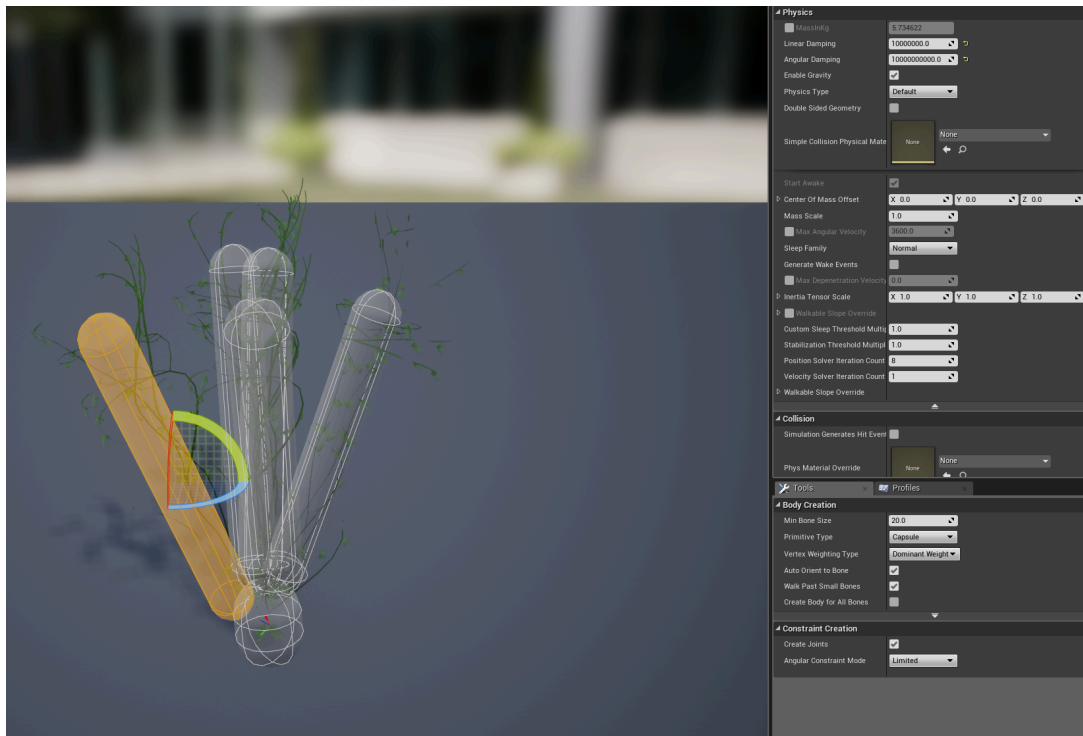
Ignore Radial Force

Apply Impulse on Damage

Settings inside the BP



Settings in the physics asset



Disable Collision	<input type="checkbox"/>
Enable Projection	<input checked="" type="checkbox"/>
Projection Linear Tolerance	5.0
Projection Angular Tolerance	180.0
Parent Dominates	<input type="checkbox"/>

#### Linear Limits

X Motion	<input type="radio"/> Free <input type="radio"/> Limited <input checked="" type="radio"/> Locked
Y Motion	<input type="radio"/> Free <input type="radio"/> Limited <input checked="" type="radio"/> Locked
Z Motion	<input type="radio"/> Free <input type="radio"/> Limited <input checked="" type="radio"/> Locked
Limit	0.0
Scale Linear Limits	<input checked="" type="checkbox"/>

#### Angular Limits

Swing 1 Motion	<input type="radio"/> Free <input checked="" type="radio"/> Limited <input type="radio"/> Locked	↗
Swing 2 Motion	<input type="radio"/> Free <input checked="" type="radio"/> Limited <input type="radio"/> Locked	↗
Twist Motion	<input type="radio"/> Free <input checked="" type="radio"/> Limited <input type="radio"/> Locked	↗
Swing 1 Limit	5.0	↗
Swing 2 Limit	5.0	↗
Twist Limit	5.0	↗

#### Swing Limits

Soft Constraint	<input checked="" type="checkbox"/>	
Stiffness	25.0	↗
Damping	5.0	↗
Restitution	0.7	↗
Contact Distance	5.0	↗

#### Twist Limits

Soft Constraint	<input checked="" type="checkbox"/>	
Stiffness	25.0	↗
Damping	5.0	↗
Restitution	0.0	↗
Contact Distance	5.0	↗
Angular Breakable	<input type="checkbox"/>	
Angular Break Threshold	500.0	↗

#### Linear Motor

Position Target	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0
Strength	50.0		
Velocity Target	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0	<input type="checkbox"/> 0.0
Strength	1.0		
Max Force	0.0		

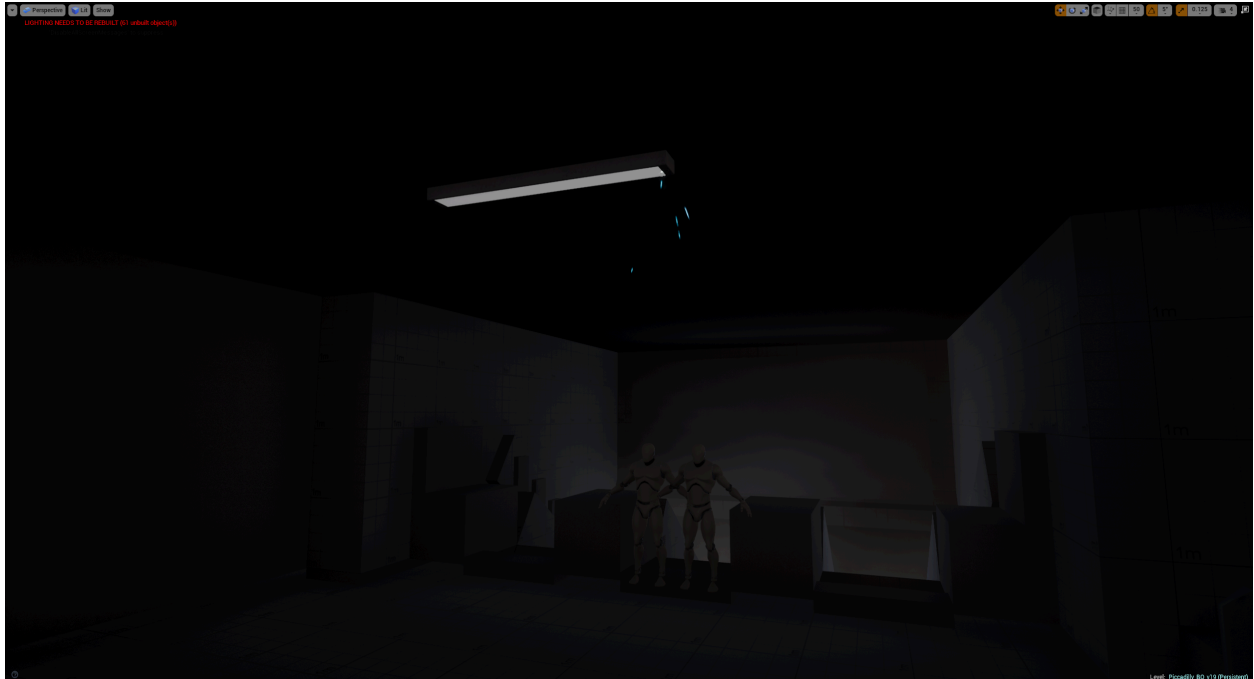
#### Angular Motor

Angular Drive Mode	Twist and Swing			↗
Target Orientation	X 0.0	Y 0.0	Z 0.0	
Drives	SLERP <input type="checkbox"/>	Twist <input checked="" type="checkbox"/>	Swing <input checked="" type="checkbox"/>	
Strength	2500.0			↗
Target Velocity	X 0.0	Y 0.0	Z 0.0	

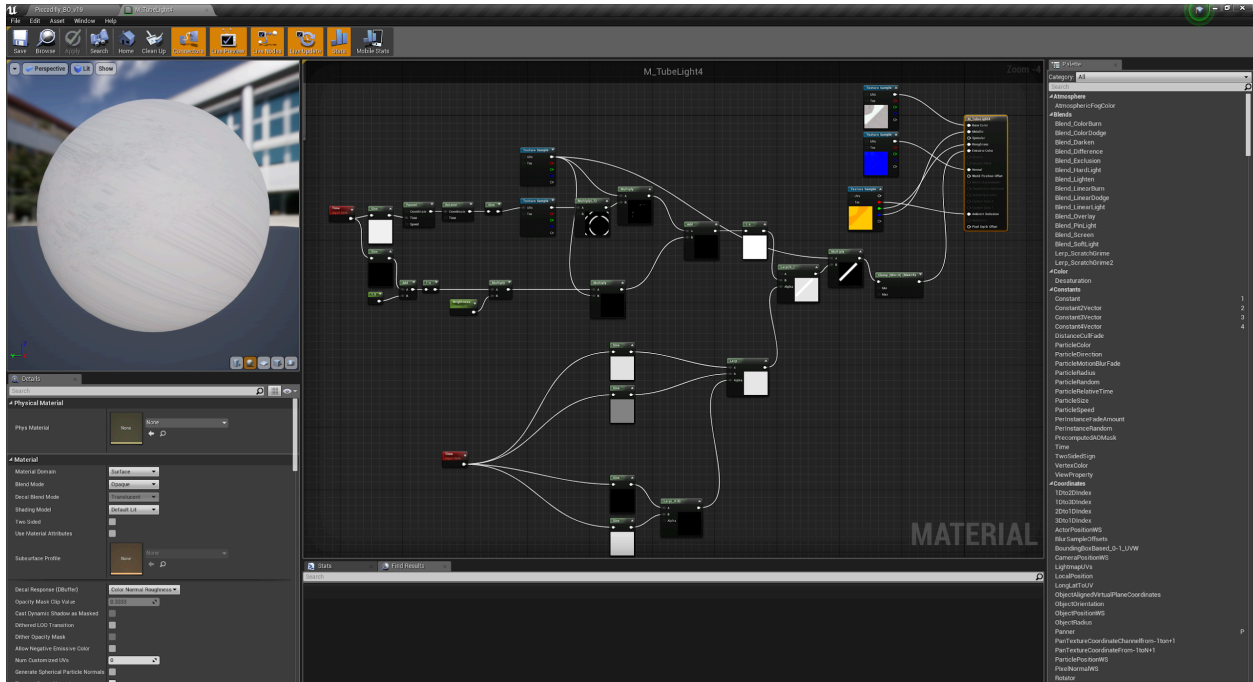
Don't change anything in the asset, just drag it in and set the collisions. Or it'll break, and I will break you. :)

## 6. Flickering Light

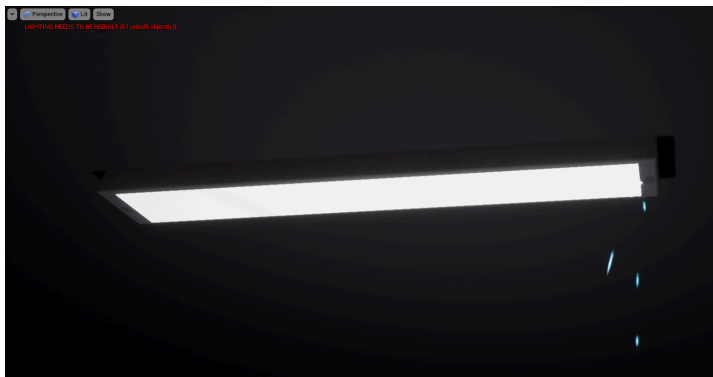
The flickering light is a simple emissive material applied to the 'light' part of the mesh which has two material slots.



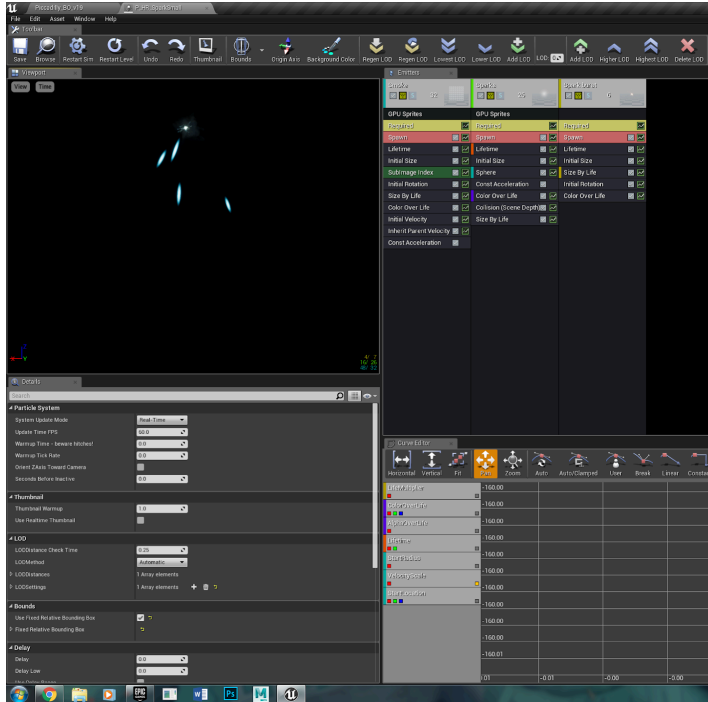
The light flickers on and off with several different patterns. I couldn't make it random as we needed to use the same math to make the actual pointlight flick at the same time.



## 7. Cheeky Little Spark

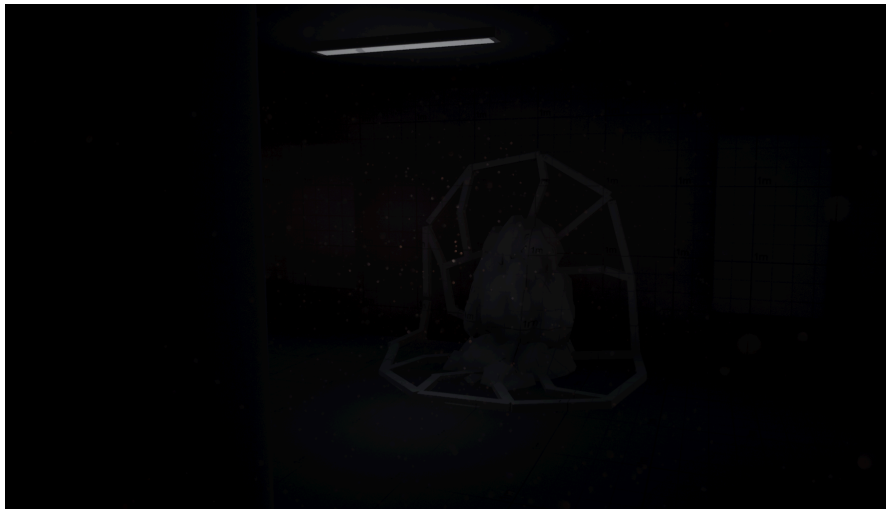


The spark is made of two particle emitters, one producing a constant spark and the other an intermittent burst making it feel random and broken.

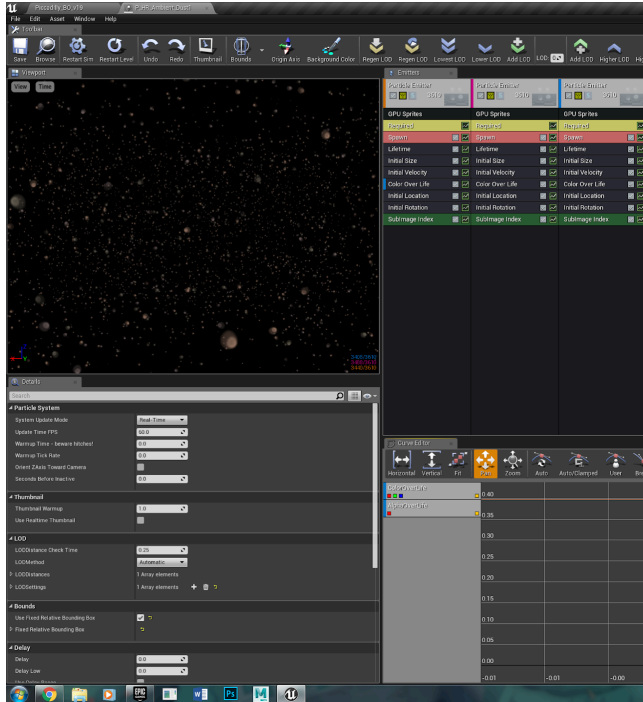


Both particles have three emitters, one for the sparks, one for the core and one for the smoke, these all have colour over life parameters and separate materials.

## 8. SporeParticles



Particle system for the sickly looking spores.



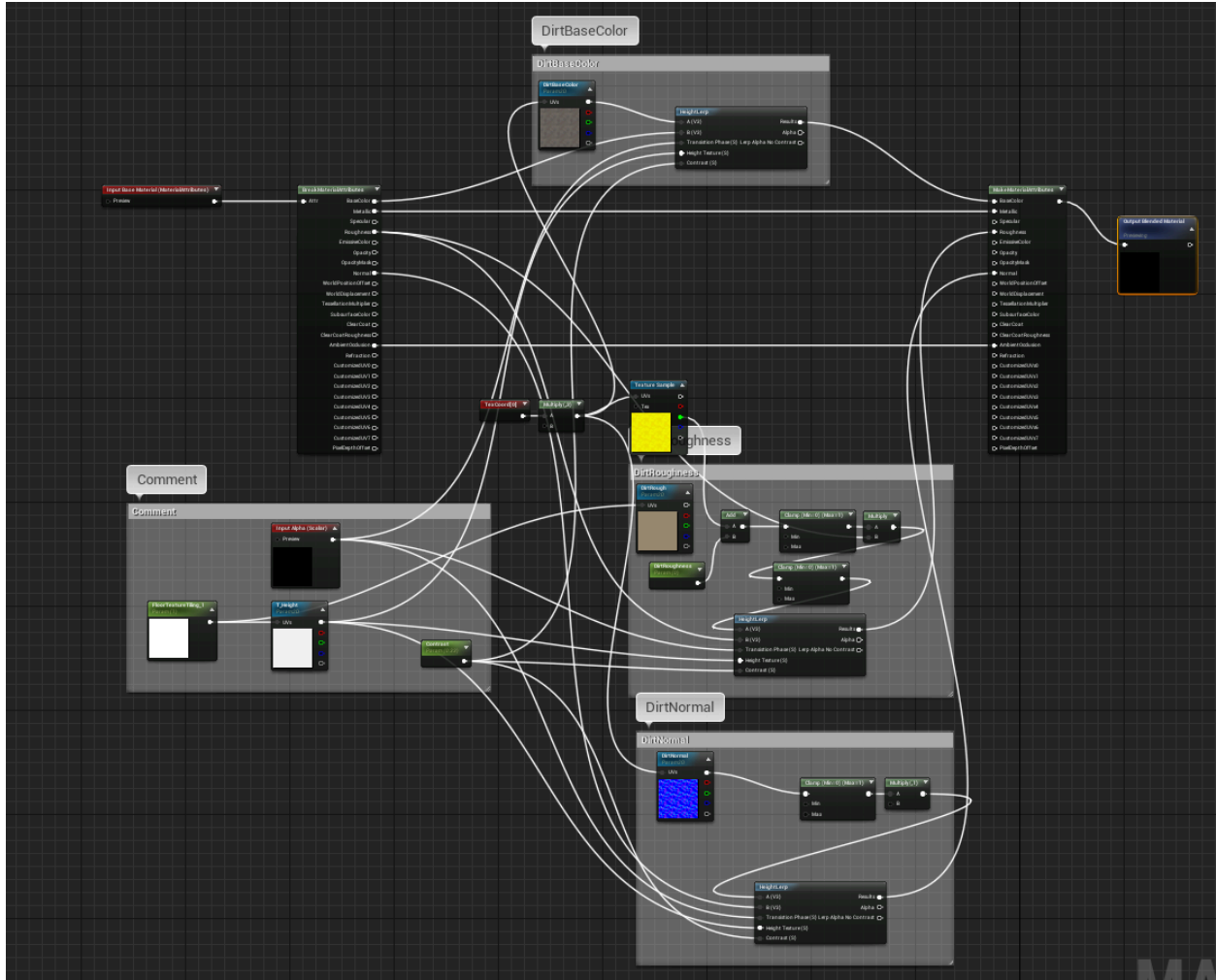
Three emitters, all the same except for some variation in size, opacity and colour over life. This gives the particles system an increased sense of depth. Slight movement to give the effect of moving in the air.

## 9. SporeParticles



Edited the Fogsheet blueprint and made an instance of the material so we could have a sickly fog to accompany the spore particles, this makes the atmosphere down in the Tube much more sickly and claustrophobic.



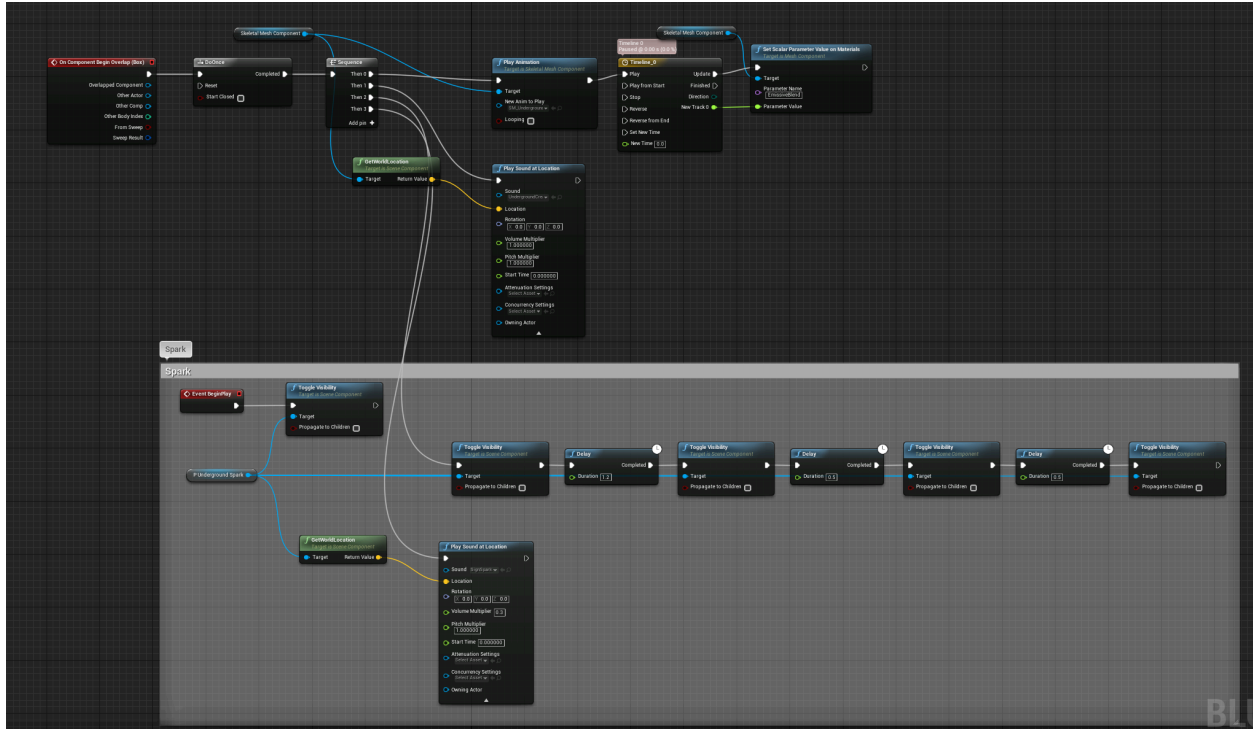


For the water I'm only using the RGBA channels on the floor where the alpha is the water. In the fountain I have extra wetness in the R, Moss in the G, Dirt in the Blue and the actual Water in the Alpha. This means the other guys can paint the dirt and moss in the water however they like.

**12. Interactive Underground Sign**



Underground Sign BP

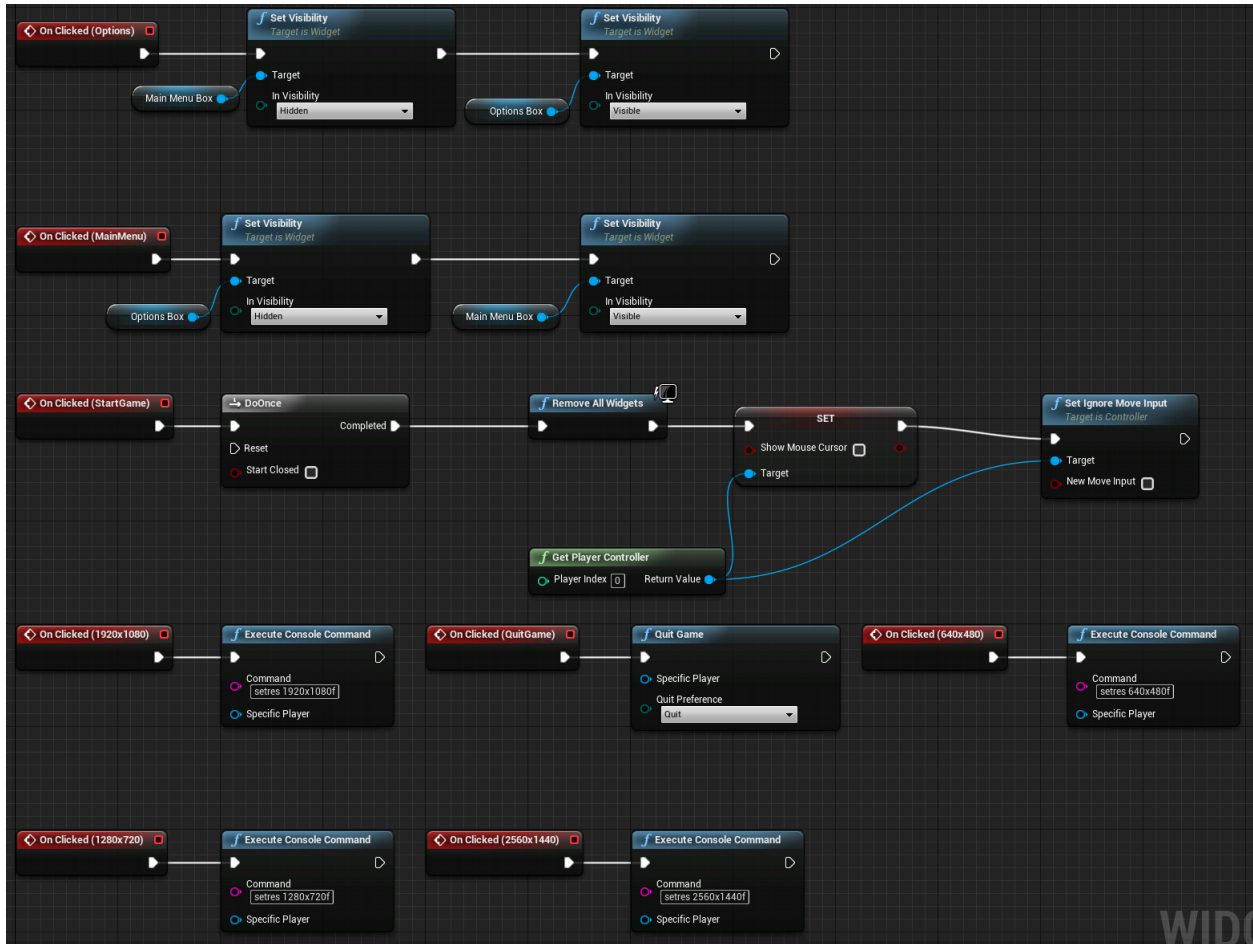


When the player walks into a trigger box, located opposite this sign, the sign breaks and swings downwards swaying for a few seconds. The light also begins to flicker instead of being constantly on and a spark flashes whilst it swings left to right. The spark, the breaking and the swinging all have sounds associated with them that play alongside the animation.

13. **Main Menu**

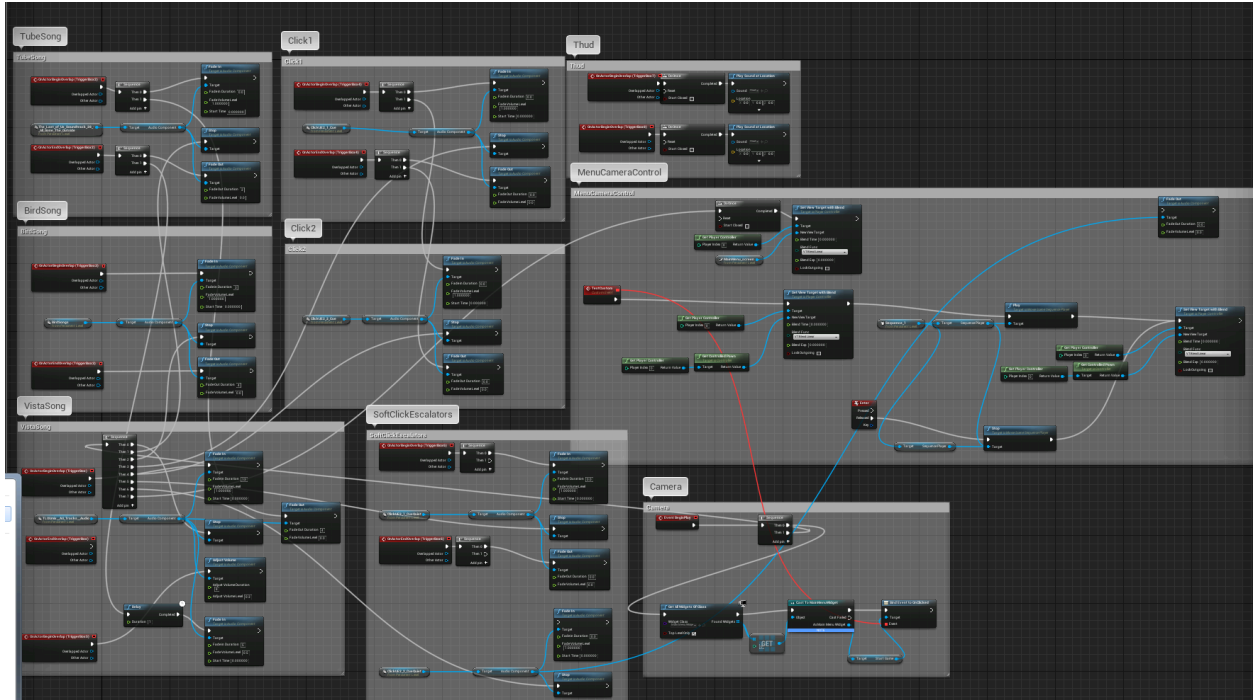


## Main Menu Widget



I made a main menu for our project, so that the presentation could be more polished and make it feel more like a real game. I have a camera actor in the scene which I am using as a background while the game is running, this means that the flag blows in the wind with the foliage, giving life to the menu background, and helping to set the tone. I have resolution and graphics settings editable by clicking options and opening the options menu. When you press start game, it plays an opening camera sequence, a wide-shot that pans down to the player start. This is skippable by pressing the Enter key. Then the game starts as normal.

## 14. Level BP



This is where most of the sound in the game is controlled, as well as the cameras for the menu sequences.