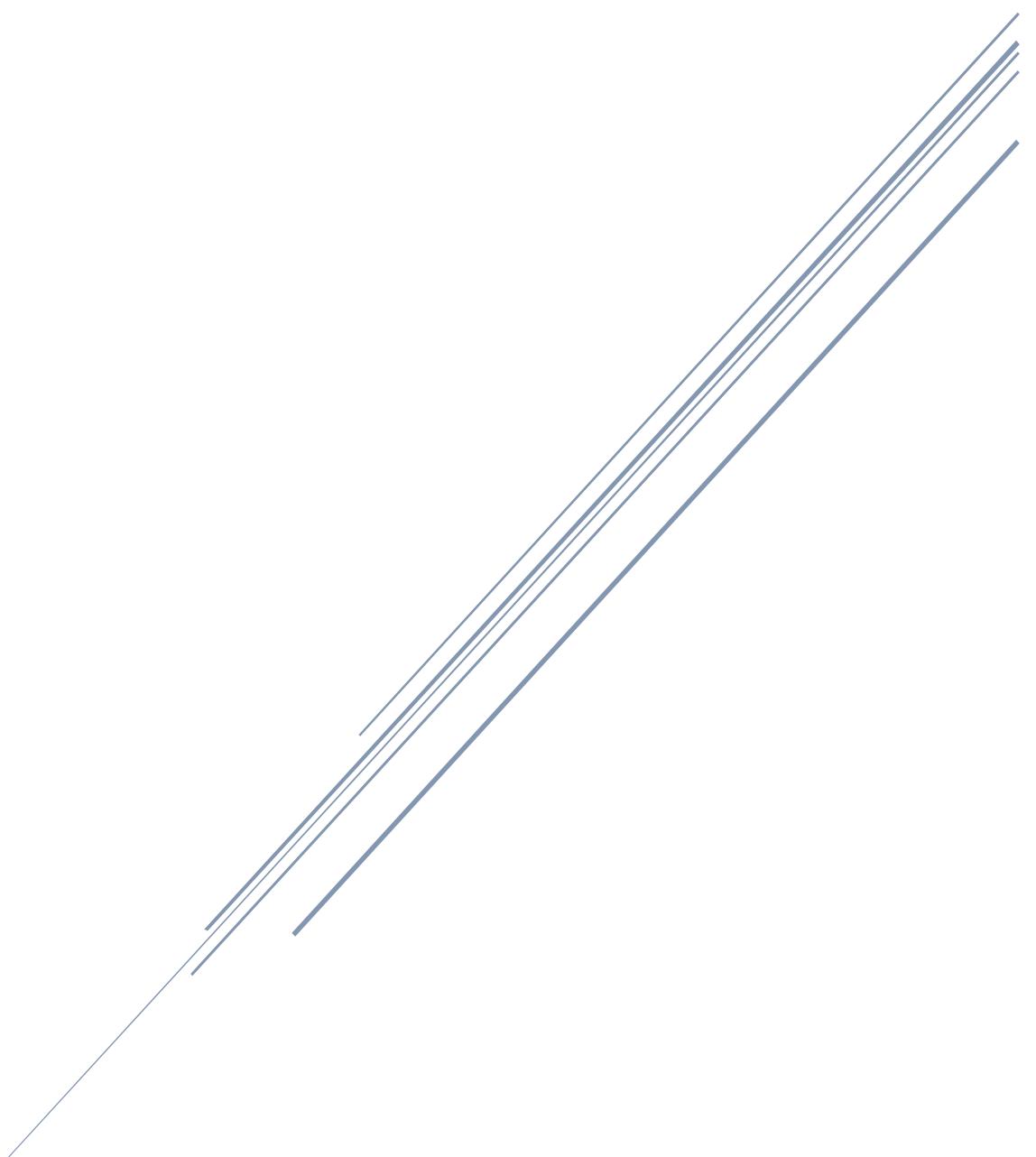


# LEVEL DESIGN AND SCRIPTING

## PORTFOLIO



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1904017

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## Concept & Brief

### Chosen Brief

For this project I have chosen the brief "Autobiography"

### How concept fulfils the brief

My concept follows my nightly walk from my friends place of residence to my own, the brief states that "something as seemingly mundane as your daily routine" so I took a part of my day that I believe can be creatively represented, I plan to build out a level based on Dundee but with my own iterations throughout to give it a different look while also still sticking to the dedicated route. My game is atmospherically focused, I want to build up a sense of tension by having limited noise being played except for areas of rain, light failures and people talking in the distance, I want ambience noise such as wind to help kill the white noise.

I believe it fits well to the brief and I am looking forward to building it out to the best I can with what knowledge I have.

# Research

## Design Research

When it came to designing my level, I did not have to do much myself since I will be re-creating a real-life location, so I used google maps to get the layout I wanted.

I read a few chapters in the below books:

Fullerton, T., 2019. *Game Design Workshop*. 4th ed. Boca Raton: Taylor & Francis CRC Press.

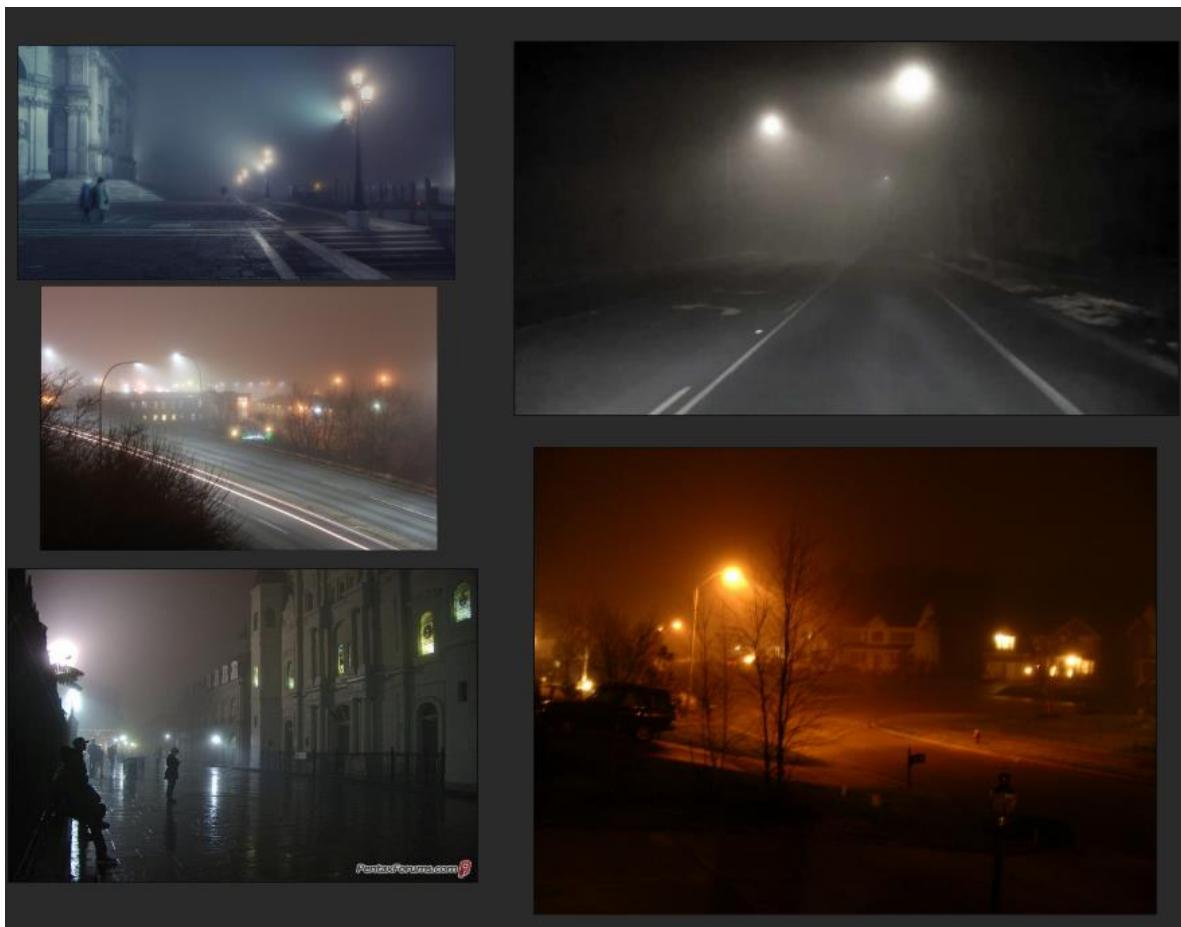
Kremers, R., 2009. *Level Design*. Natick, Mass.: Natick, Mass. : A.K. Peters.

I used these books to help prepare myself and they helped give me ideas as to what I might wish to add to the level, they helped my understand testing from the player perspective and how I should always keep the player in mind when doing so.

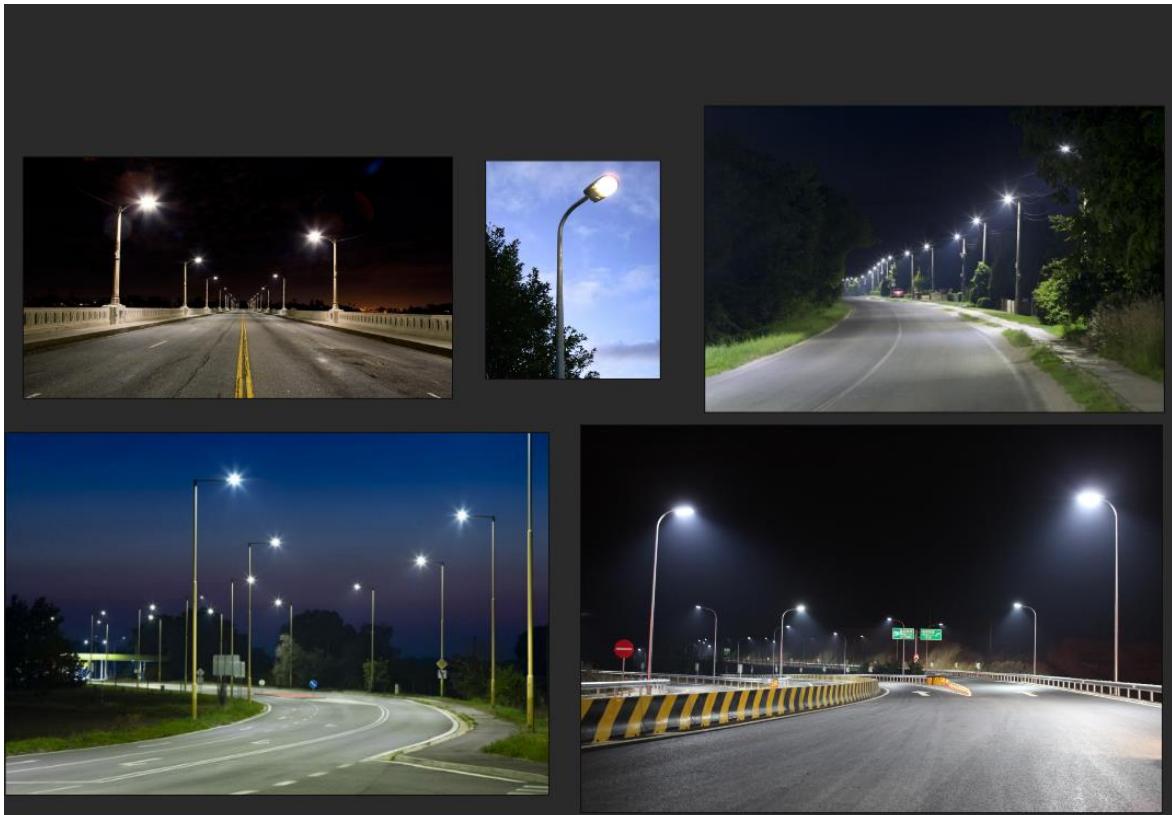
## Visual Research

Fog:

I created a pure ref board of foggy images to help set the scene in my level when I applied the exponential height fog.

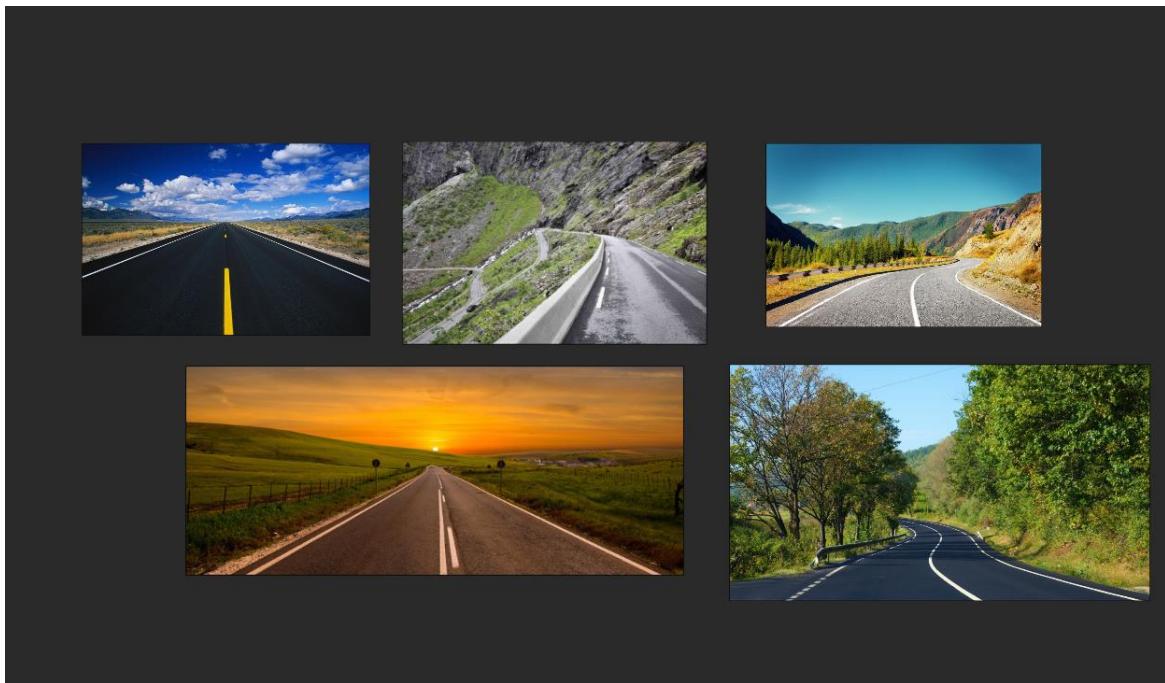


Streetlights:



I created another pure ref board for the streetlights, it helped with overall design and how the light should be produced.

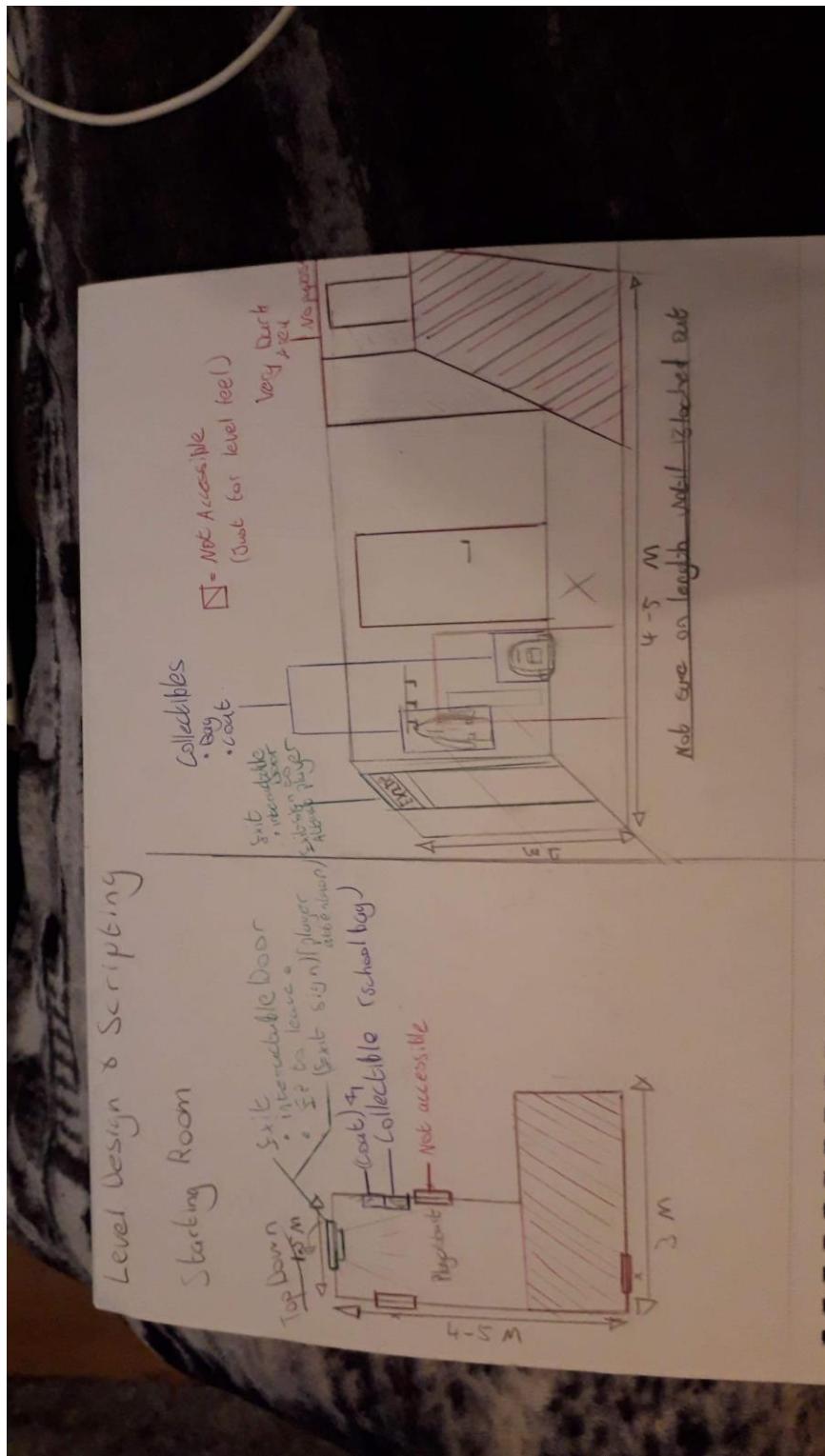
Road:



Once again, I created a pure ref board and loaded in a few images, although not really useful as I know what a road looks like, it helped with curving the road.

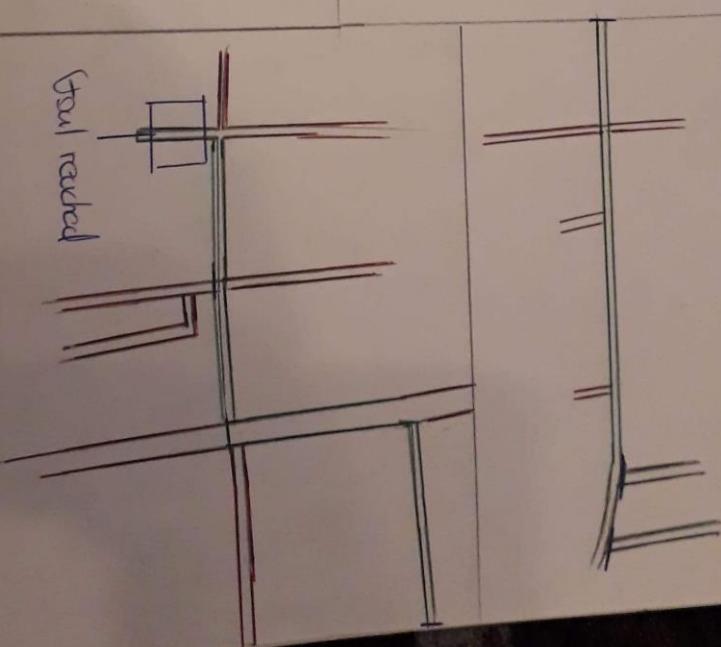
## Pre-Production | Planning

### Sketches



- Accessible
- Not Accessible  
(but can be seen)

Start



Area's shown based on google maps.  
Different zoom levels.  
Shows Accessible zone's.

## Comparisons

### Starting room:

I used BSP Brush to create my room blockout, I used the starter content doorframe and door to help show me visualize what I had in my sketches for the starter room.



Runtime Screenshot from player view, helps to show dimensions.



## Project Development

Disclosure, I used the First-person Template, I did not create the walking blueprints or mouse movements.

Since I have never worked with unreal engine before and I was going relatively blind (apart from tutorial content provided by the lectures) I knew YouTube would be my best source of getting help and learning new things through the community.

I started off by watching a few videos on BSP brushes:

UE4 Tutorial: BSP Brushes:

<https://youtu.be/Nia4K2IK1xI?list=PLR1AwcuqTSJaNL4wHDJkqReYLPXvRybEc>

Using BSP Geometry:

<https://youtu.be/pyWLWONrTEs?list=PLR1AwcuqTSJaNL4wHDJkqReYLPXvRybEc>

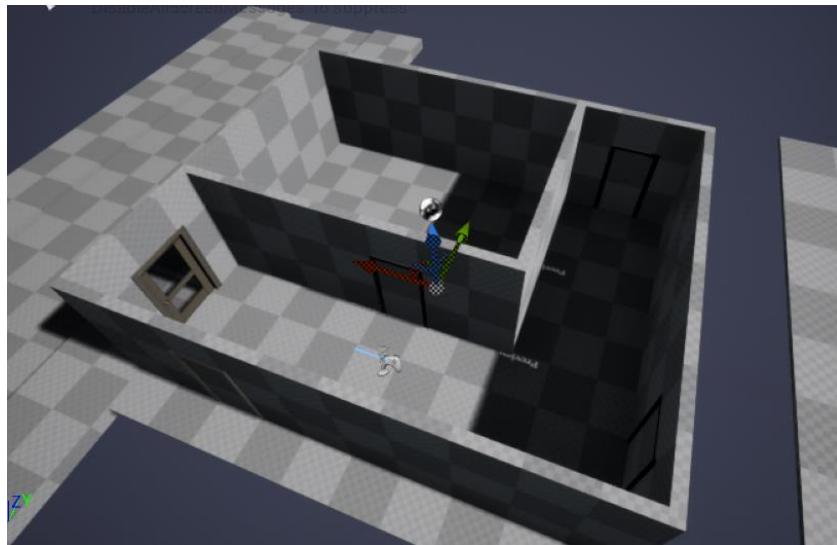
Quick Start Guide to Blockout:

<https://youtu.be/lYyP3RMqkKO?list=PLR1AwcuqTSJaNL4wHDJkqReYLPXvRybEc>

UE4 8-Step Checklist:

<https://youtu.be/M908MmEhoYo?list=PLR1AwcuqTSJaNL4wHDJkqReYLPXvRybEc>

Thanks to the above tutorials I was able to produce a quick blockout of the player starting position, based upon my sketches from memory, I was also able to ask my current flat mate if it seemed correct (as he lived there the previous year) and he agreed that it did.

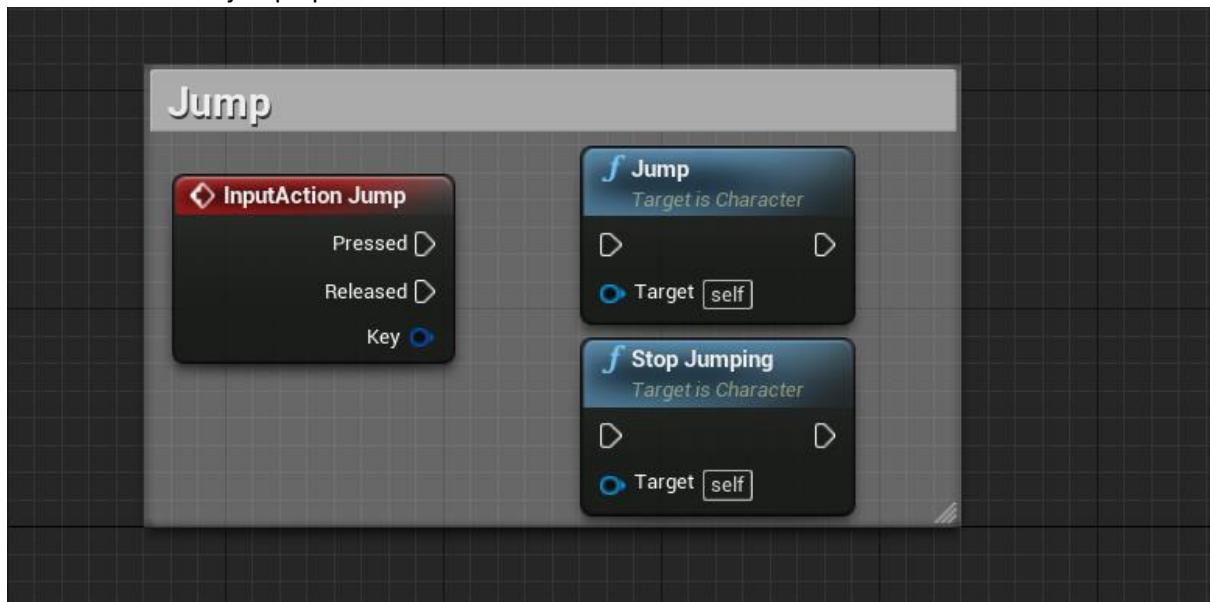


I produced the above blockout in around 30minutes to 1 hour as I was getting to grips using the BSP brushes. I also included starter content doors and door frames.

I then followed the weekly tutorial about disabling the gun and crosshair, this was easy to do and only consisted of my disconnecting nodes:



I also disabled the jump option as it was not needed:

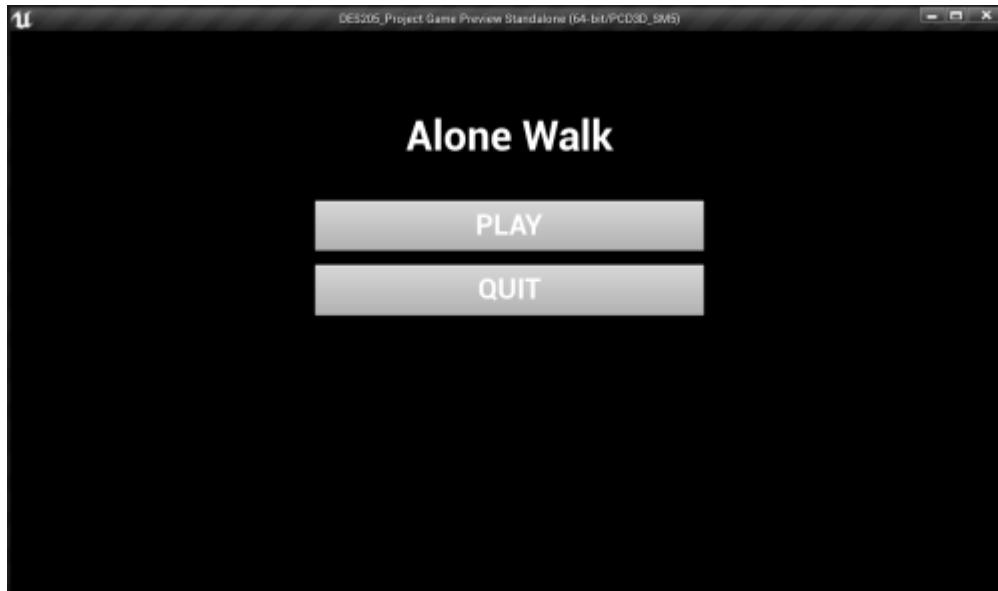


I thought an easy way to get started with blueprinting would be to create a main menu, I was not going for anything amazing, just simple for now.

How To Create A Main Menu:

<https://youtu.be/uIuO4EN8BG8?list=PLR1AwcuqTSJaNL4wHDJkqReYLPXvRybEc>

My result:



The name “Alone Walk” is temporary as I just needed a filler to see how it would look.

Next was a new approach to road creation:

I had originally planned to create my road using the BSP brushes, I was not sure how efficient that would be or if it is the optimal way, I originally created a simple road like blockout using the BSP brushes, it was a straight road using an additive and subtractive box. I then cam across the “spline tool” I watched a few videos on it do understand how it functions.

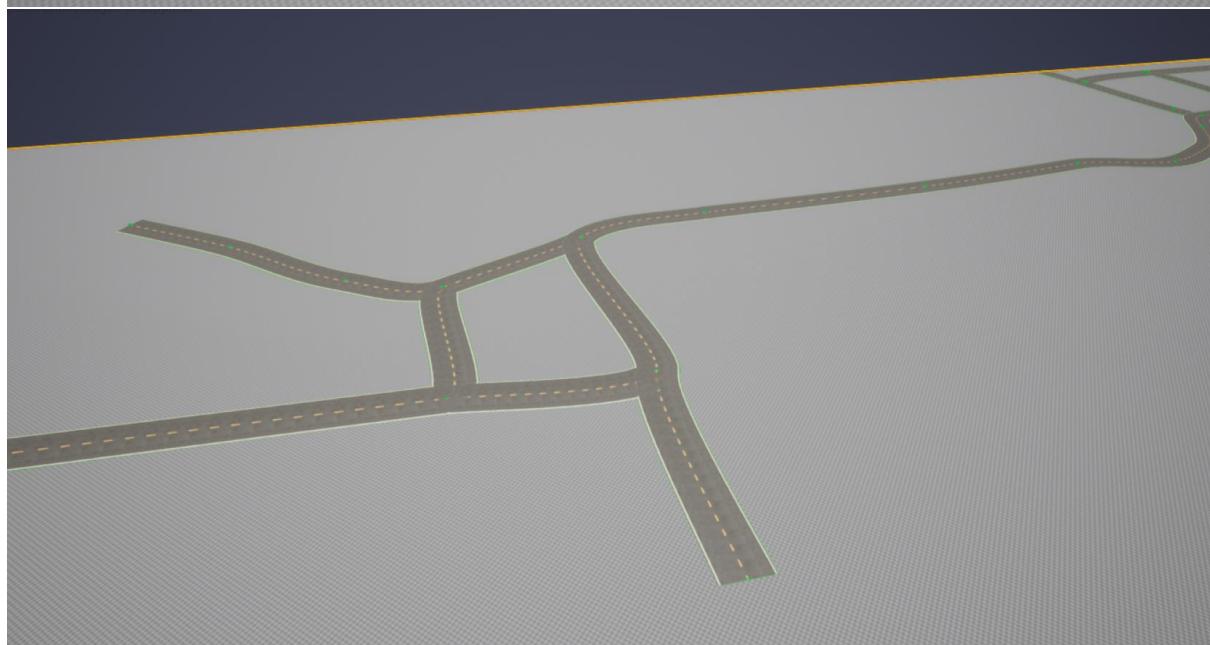
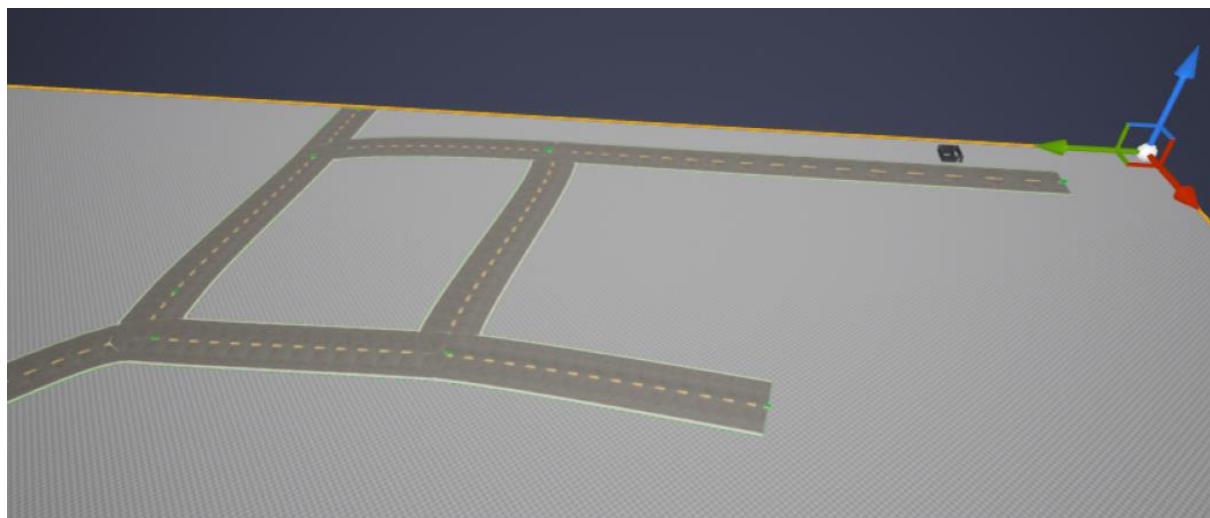
Non-Destructive Landscaping tools in EU4:

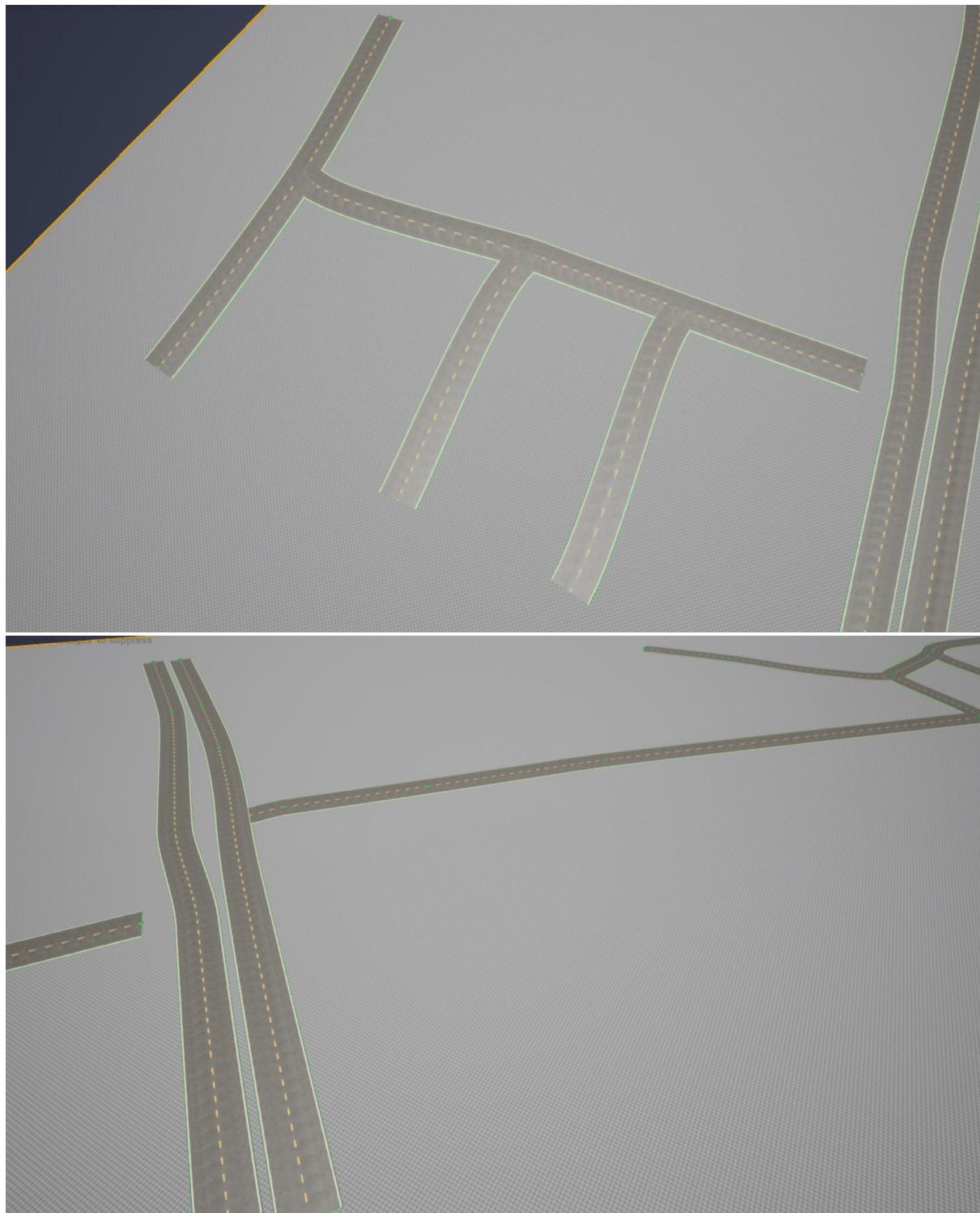
<https://www.youtube.com/watch?v=PyZotaQfHi8&list=PLR1AwcuqTSJaNL4wHDJkqReYLPXvRybEc&index=3&t=133s>

Landscape Road Spline Tutorial:

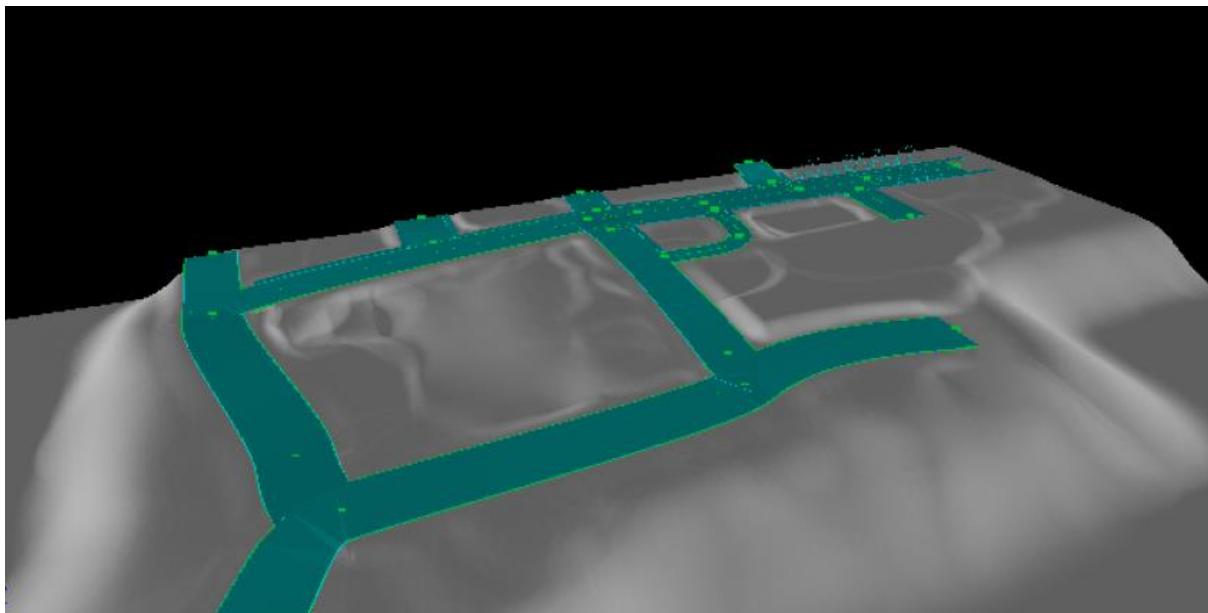
<https://youtu.be/8WIWuybAKj4?list=PLR1AwcuqTSJaNL4wHDJkqReYLPXvRybEc>

From these I was able to learn how to make use of the spline tool for my project, using the sketches and google maps to roughly layout my level, they can easily be adjusted anytime so I have no worries about incorrect length at the current time.



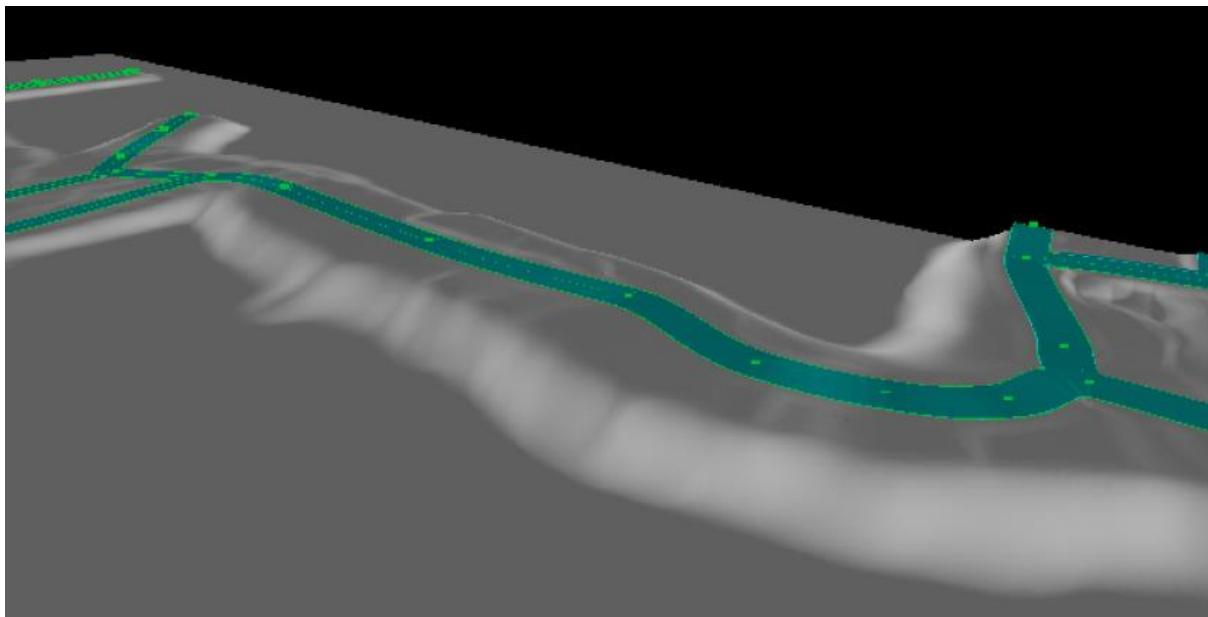


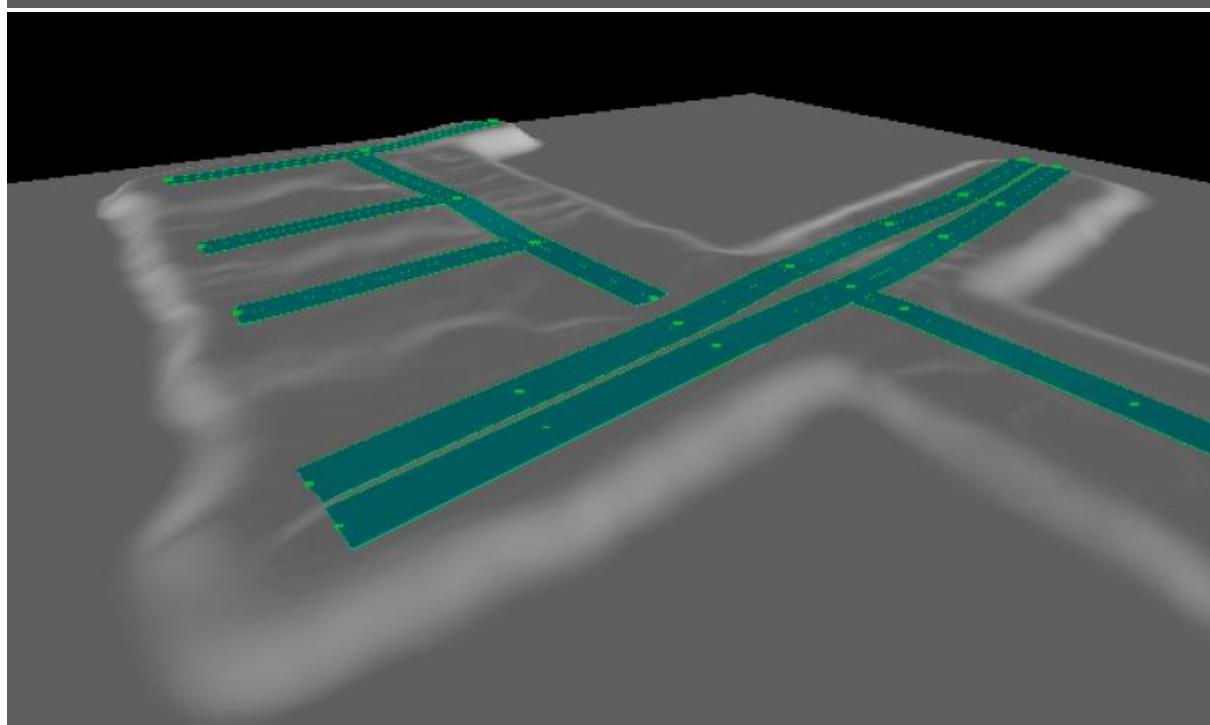
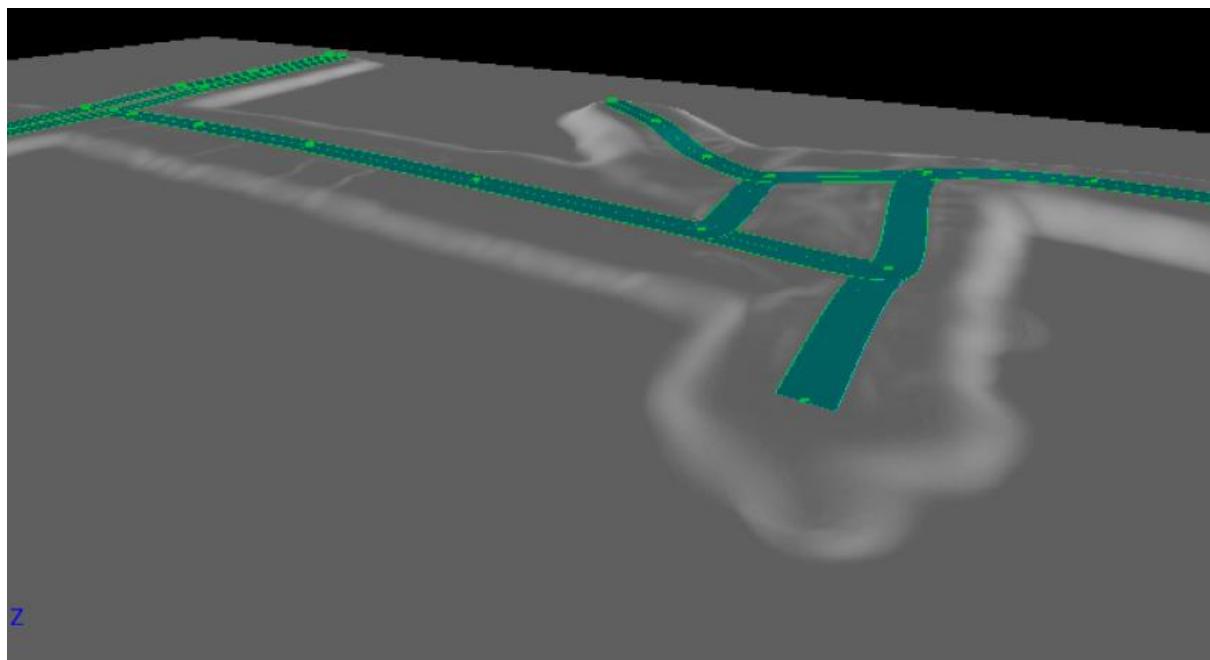
The above screenshots show my spline tool roads. I till have yet to actually apply any form on height adjustment as the world is currently completely flat, a handy thing with the spline tool is that it sticks the landscape to the spline so adjusting height will be easy enough.



I then worked on landscaping, I have no height information to work off of, so I will be increasing/decreasing as I see fit to do so. I have it here showing in “player collision” mode to help to showcase these height variations, it looks a bit messy, but I will smooth out once the blockout process is done.

More Screenshots:





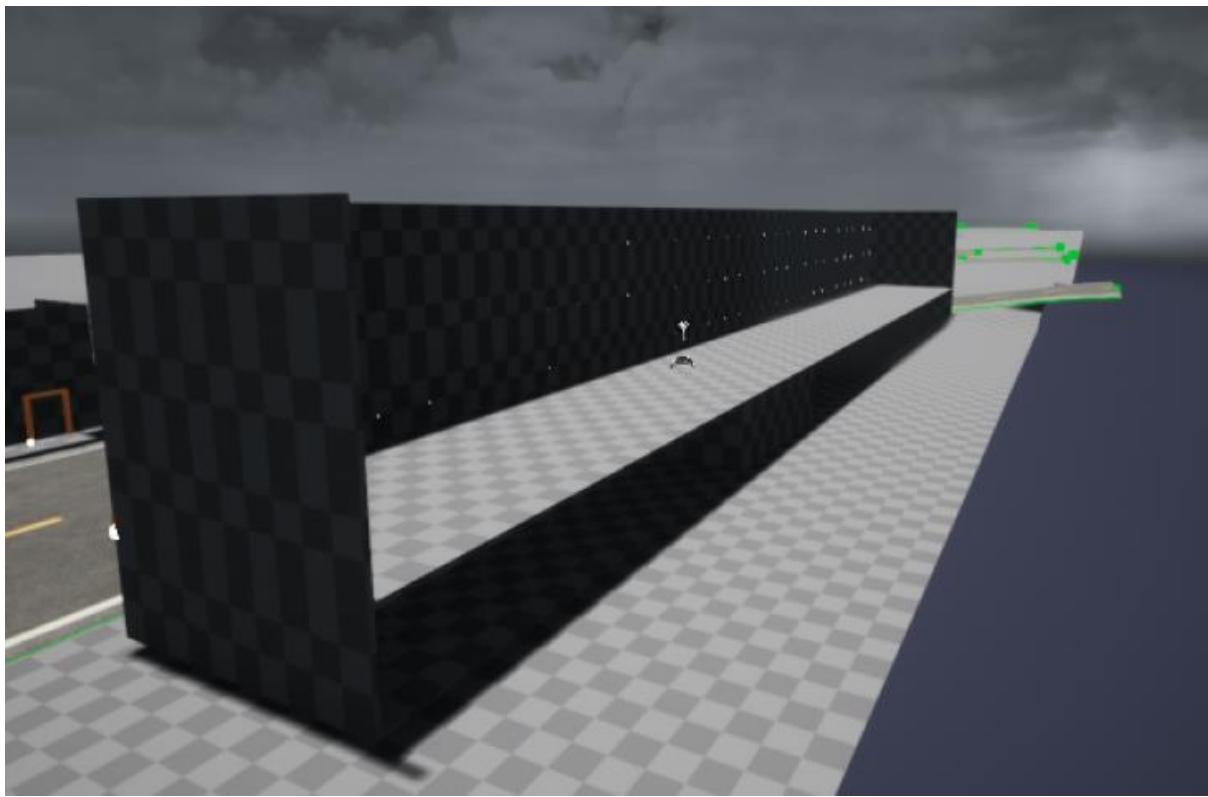
I then worked on blocking out the main scene around the starting area:



I used BSP brushes as well as the “blockout tools” plugin that was free in December on the unreal store.



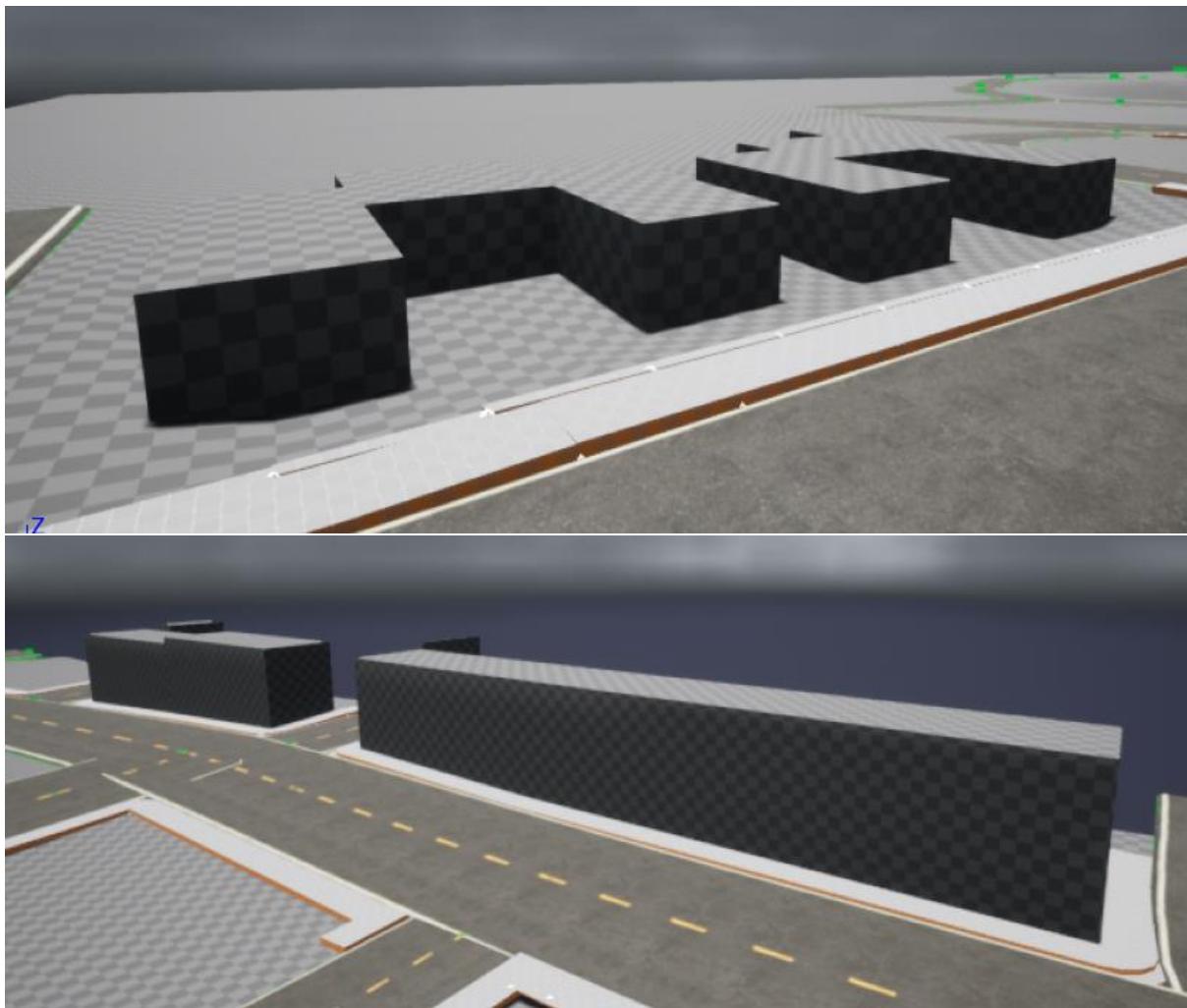
Since this area is the main surroundings at the beginning, I am adding window frames and doors to these buildings to help give a bit more lively feeling, I won't be doing this for all buildings, only ones I feel are important to have the extra bit of detail added to them.



To save of system resources I am leaving the back of the buildings empty and not filling them out, the player will not see these, so I do not believe there is a reason for it.



I added pathing using the “blockout tools” plugin, these were a handy addition as it comes including a curved block that I can use for edges.

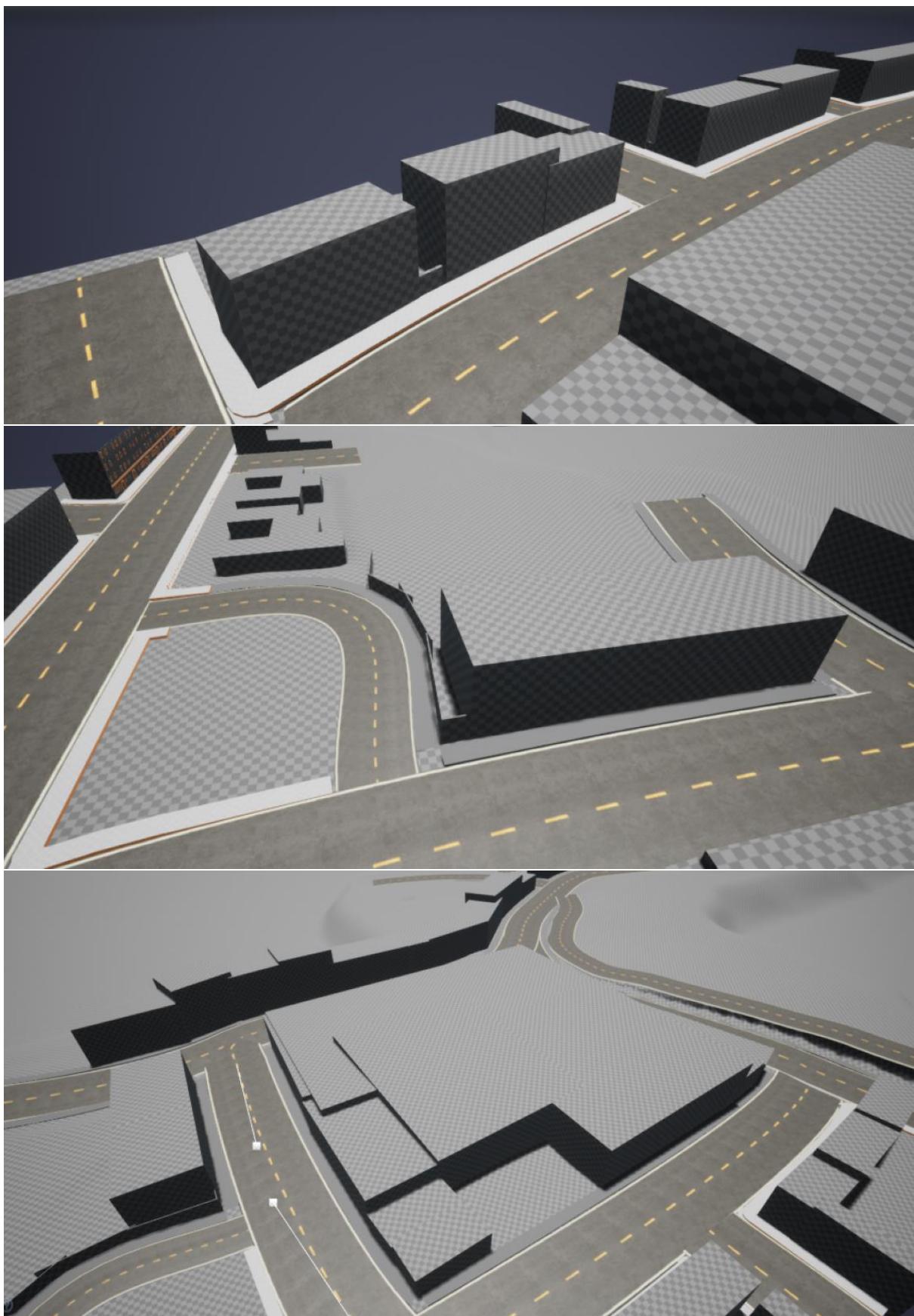


Above are more building blackouts using simple BSP brushes, these buildings are of no significance therefore they are just plain, and their main use is to fill out the level.



I added extra small details around the “Doctors”, in real life there is a fence surrounding the building, so I used the included fencing provided by “blockout tools” plugin.

I continued blocking out round the roads, I left the pathing I have for now, I will go back and replace later, I am prioritising the blockout process for now and re-pathing later.



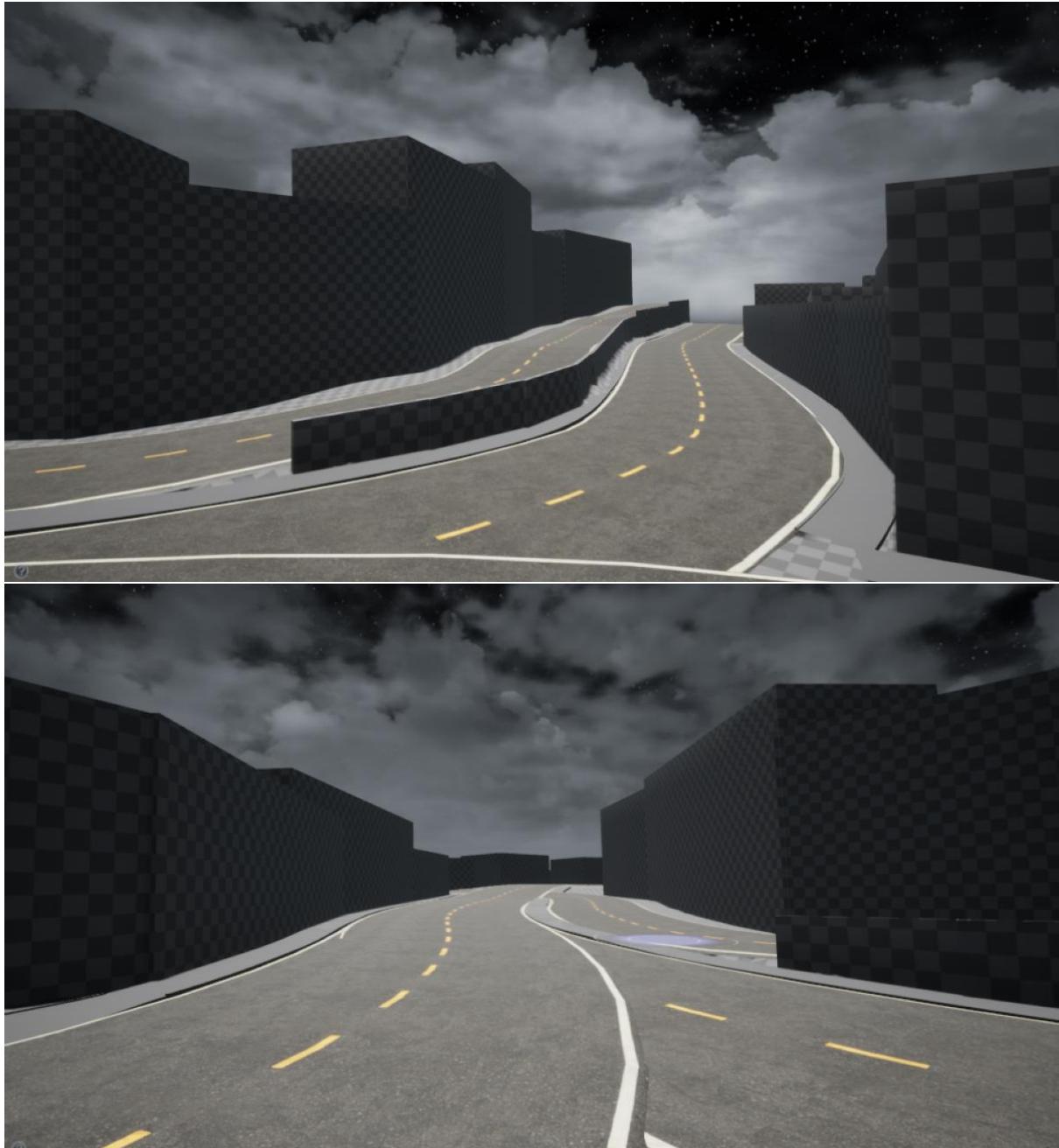
For any new areas that I am blocking out I am using the new path mesh via splines, as it is much more effective and easier to use.



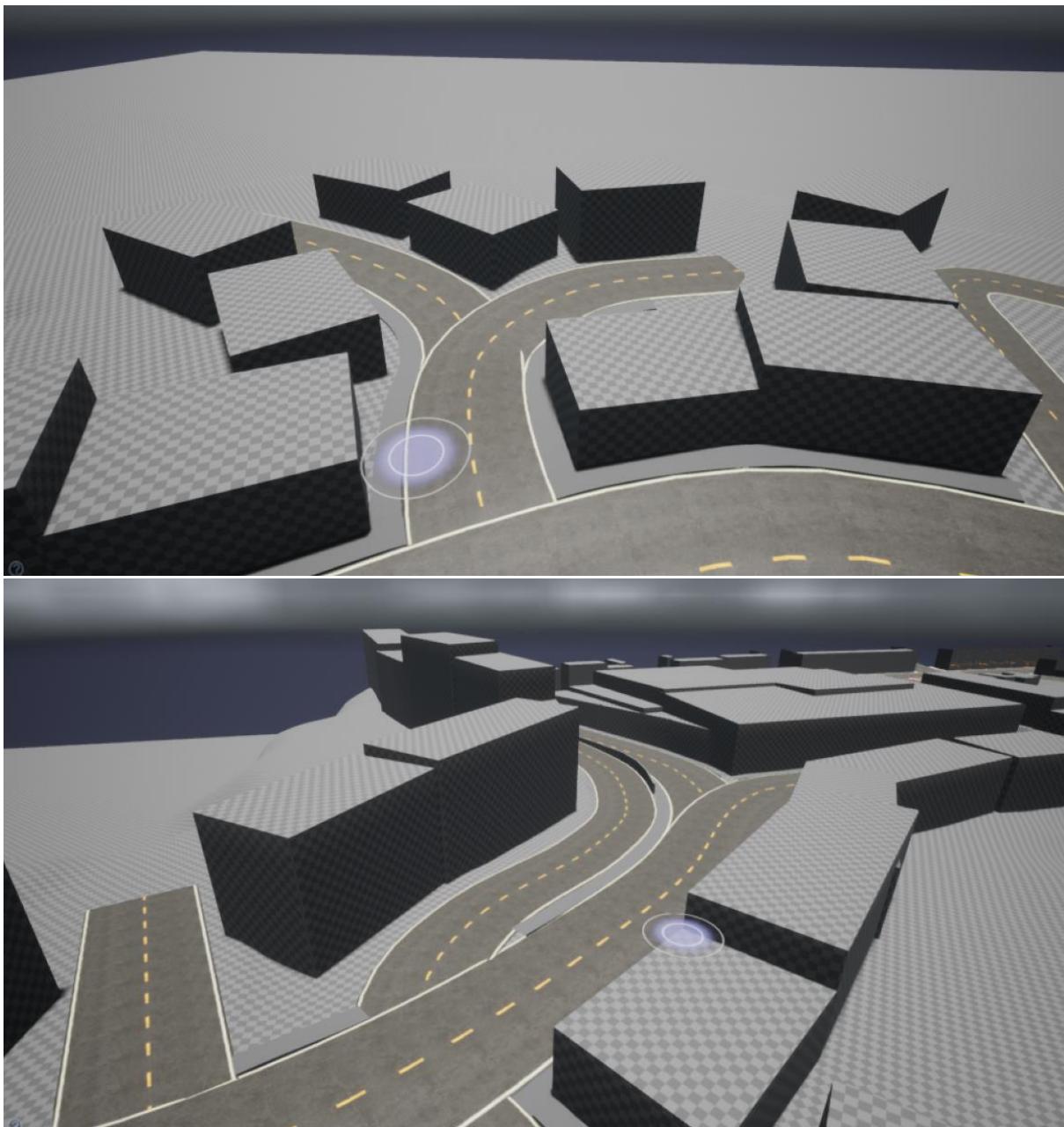
I added another road with an incline, the sides aren't very pretty, I can cover these with basic bsp brushes to act as walls.

I'm also take a different approach, I was trying to replicate the buildings as best I could, but from now on, I'm doing my own iteration on them, I don't want an exact copy as it isn't really relevant what the buildings look like, I have the road layout done as best as I can with more to be added as I continue the blockout process.

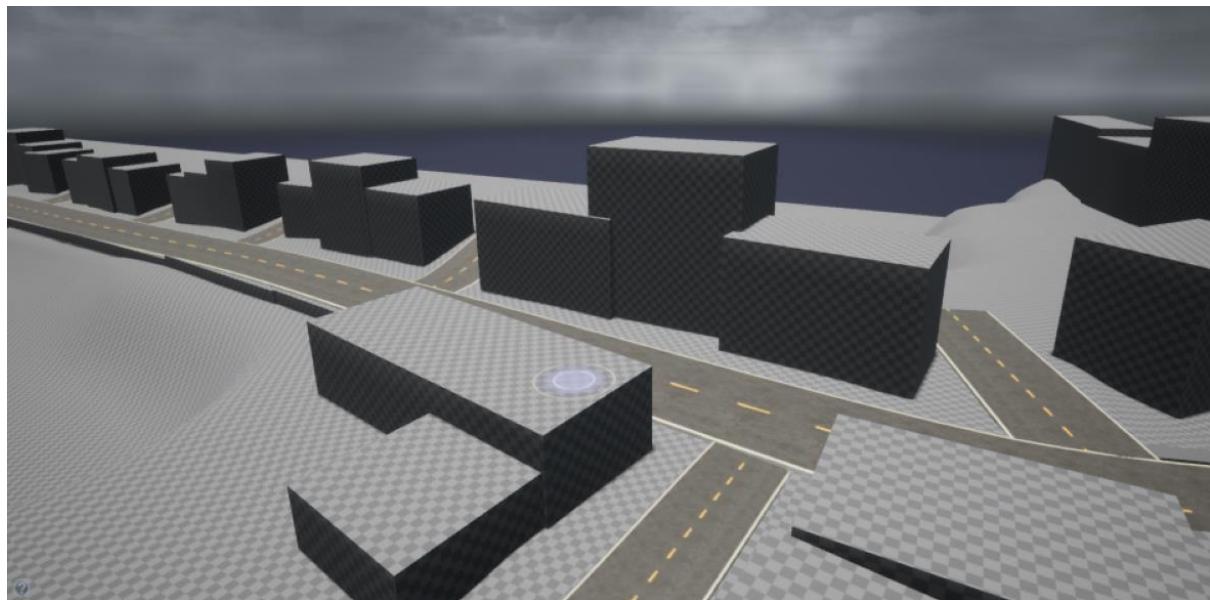
I then continued blocking out more buildings, I worked on the recently added road incline, I added a wall to hide the world landscape, although not perfect it does the job to help split it up more. I added more pathing using the spline tool to follow alongside these roads.



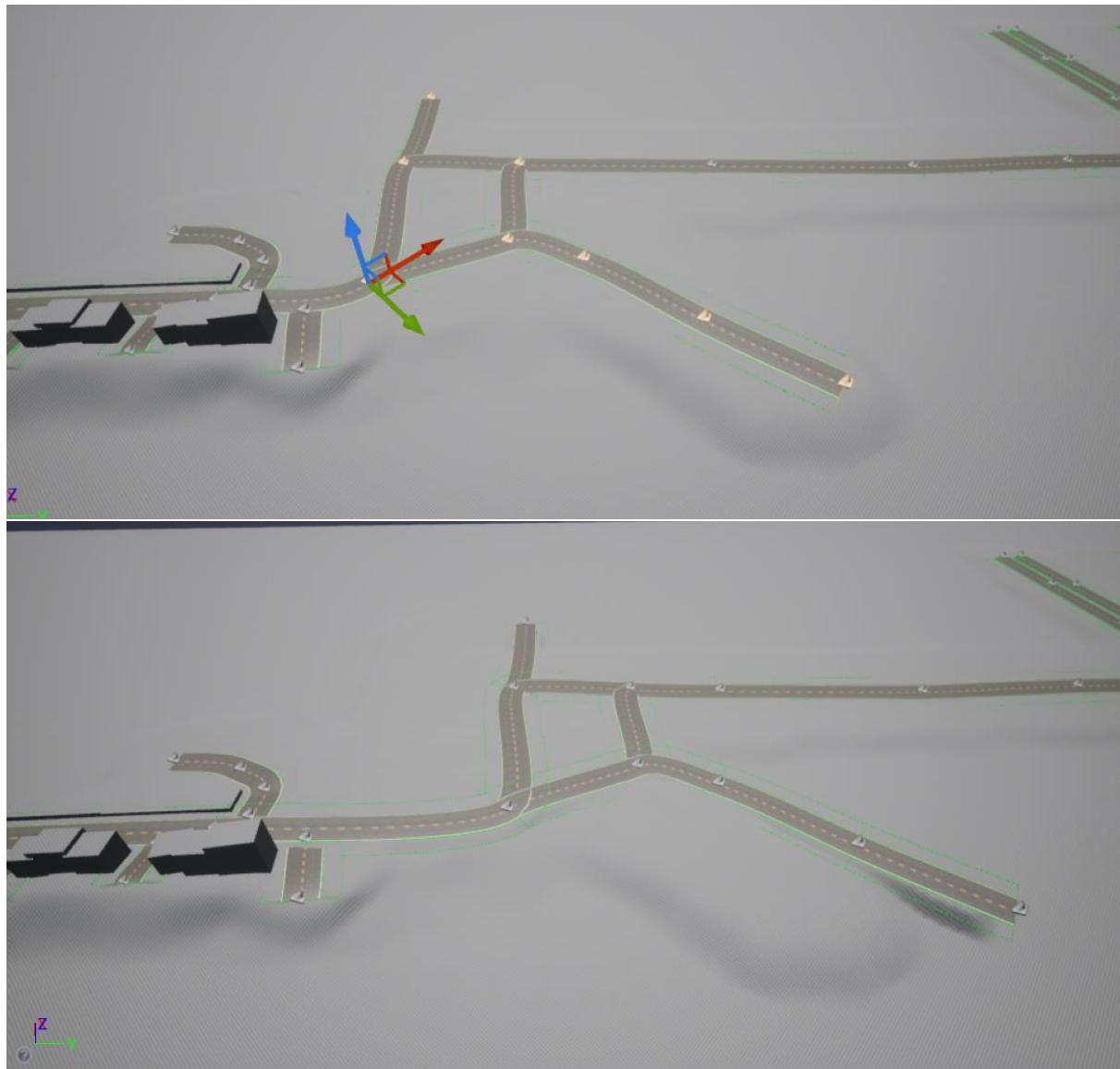
I added some buildings that lead down this road, although they wont be accessible I thought I may as well build them up as from different angles the player might be able to catch a small glimpse of them, letting them know there is more than what they are able to see.



I then did the long straight road, I build up the buildings and roads that lead off of it, I gave different height variations throughout this line of buildings, with the building in the centre being the tallest of them all, it looks a bit unrealistic, but I am content with it and do not think it is a real game breaker.

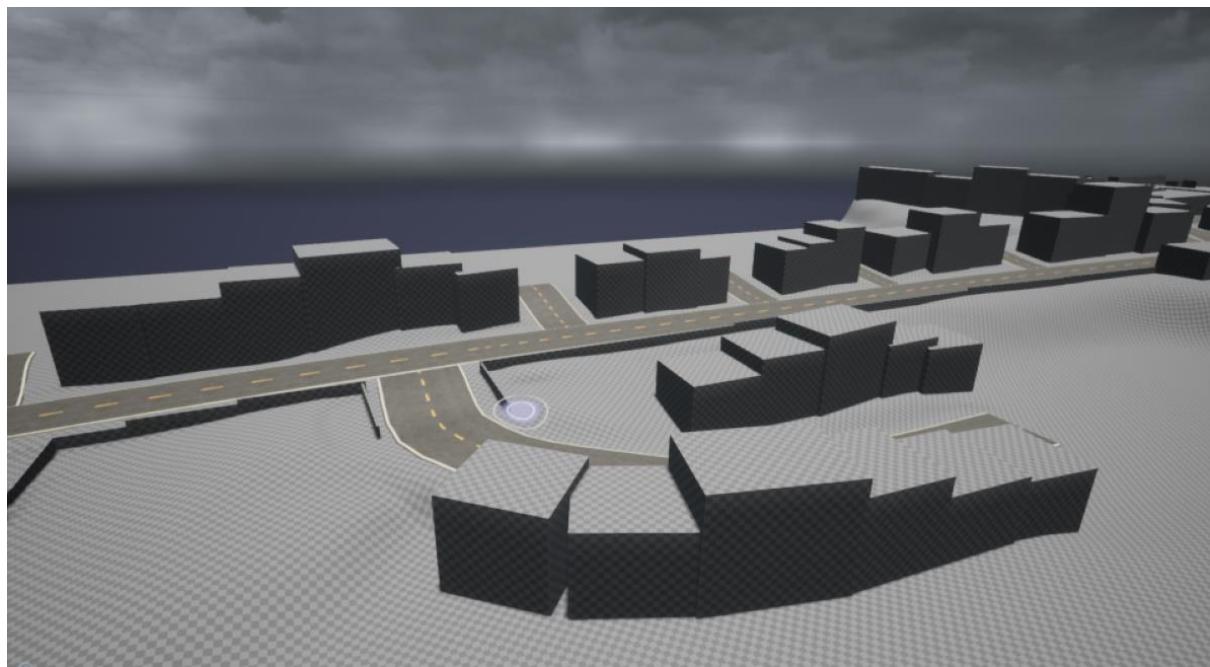


Before moving on with the next stage of blocking, I felt that there was not enough length in this section, so I selected the control points and moved them over:

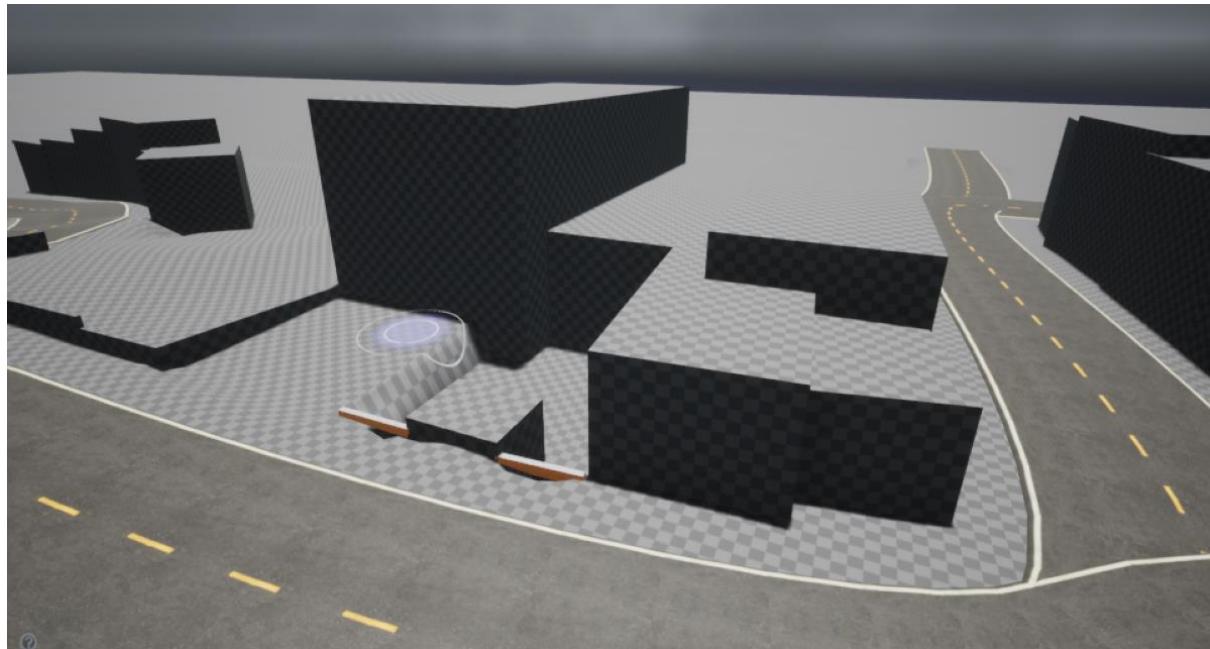


I like this result more, it allows me to add in the buildings I want, it also felt more true to life this way, as this is a lengthy road. I rescaled the landscape to fit around this adjustment afterwards.

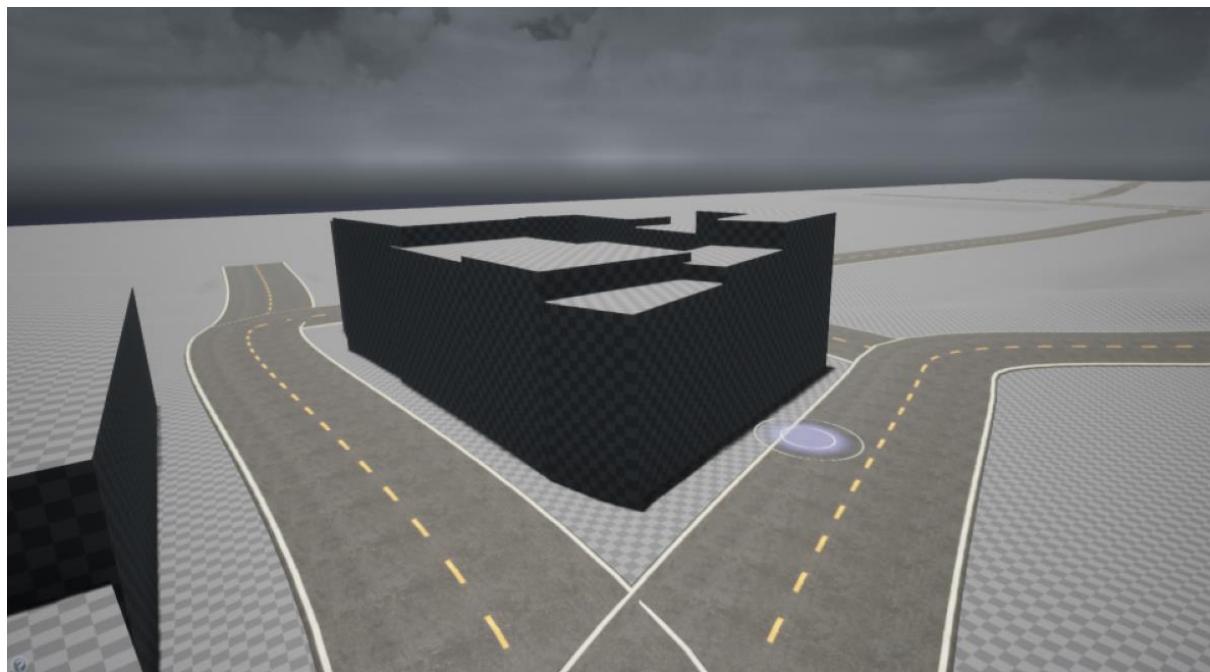
One of the roads that flows off this road declines into the hill a little, I built up the buildings again, although not accessible like before the player can at least see them, I added these in as when the player walks down this road, they get a view over a majority of the city and then it breaks off and back into buildings that block the view so the player can they focus on navigating.



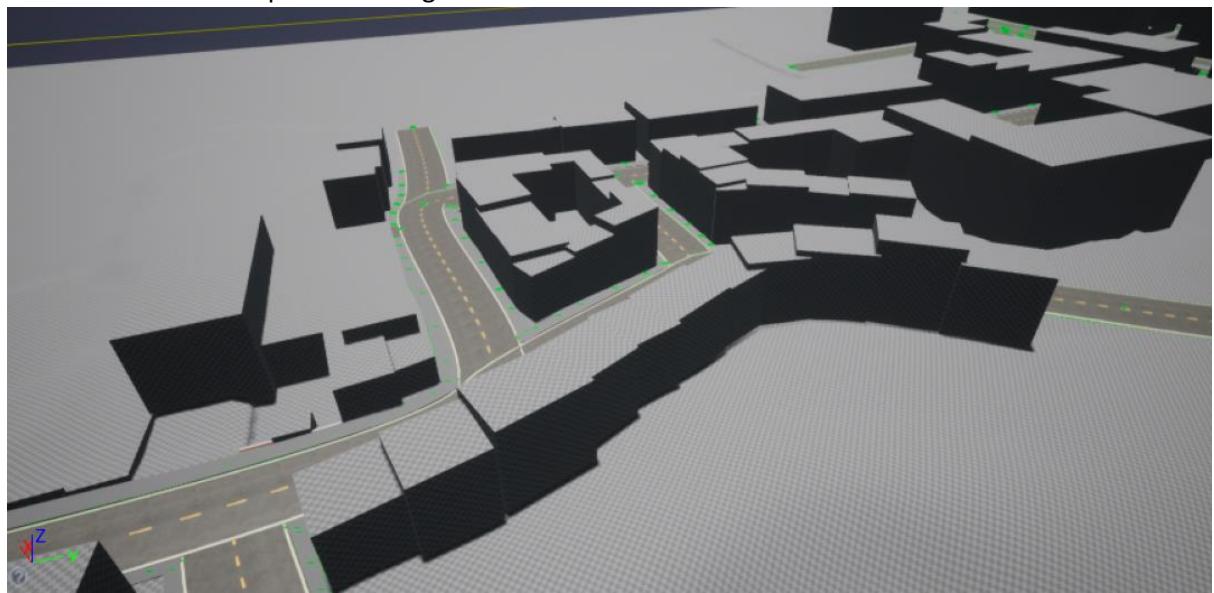
Just after the road decline, I added the library and shopping centre buildings, in real life there is stairs that decline down to the entrance of the building so I thought I would add that in, I used the blockout tools plugin and added their stairs in and adjusted them till they fit in.



Just after the above image, there is a section that is encased in roads, I built these buildings up as they are quite tall buildings that loop around, I left the middle open as I plan to add audio to this location of people talking, I want to give the effect of them being in this centre part so the player cannot see them but only hear them.

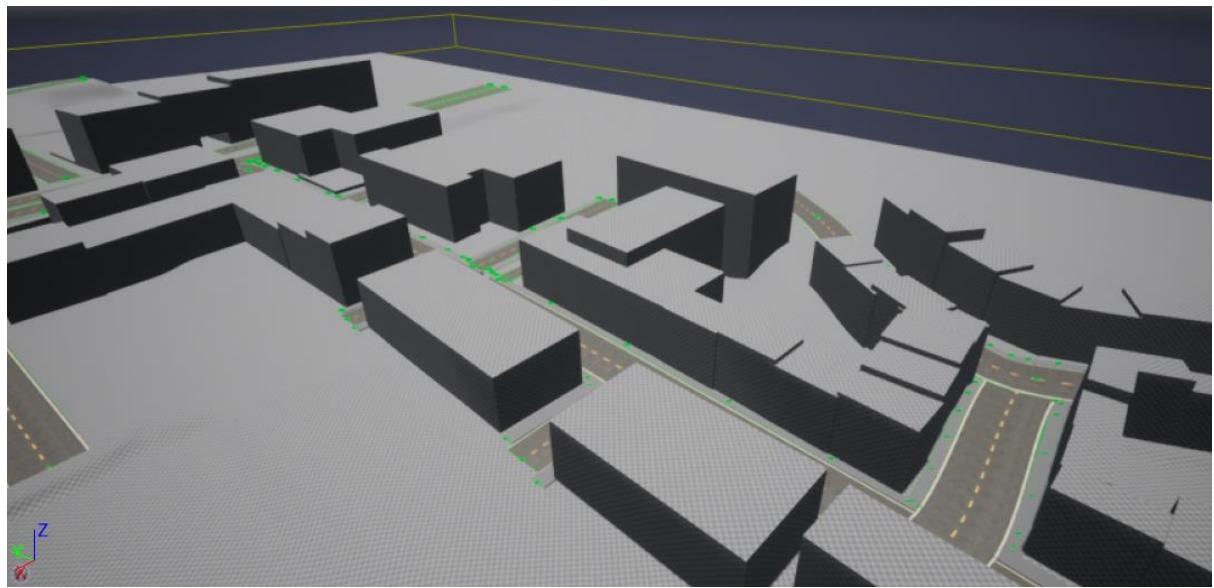


The next section was more blockout, I did a significant part in this stage, filling in a lot of the surrender area of the previous image:

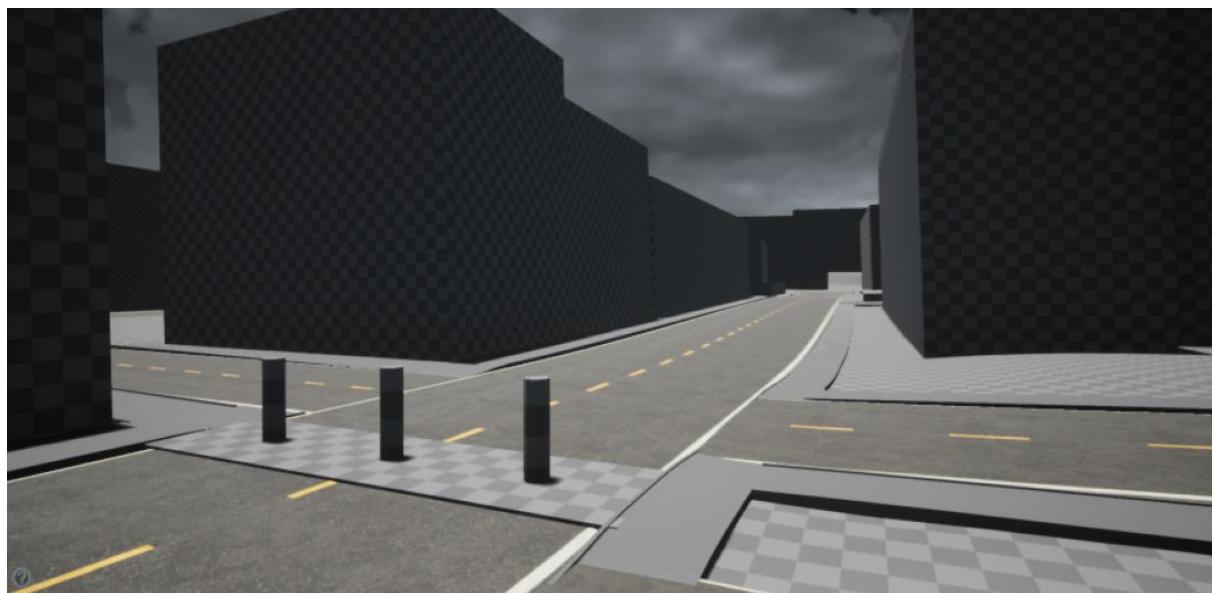


I added in any road cut offs that were necessary, it helps to break up the wall of buildings, I was still following my drawing of the road layout, although they may not be in the exact spot they are good enough to break the wall.

To help make it a bit different, I gave the buildings different height variations, this row of buildings on the left is mostly office and some accommodation buildings, as well as Dundee Highschool, on the right side, Abertay University and the Library are there, they are rough blockouts but after showing the screenshots to friends and my dad they were able to recognise the area. Which is a good thing, it let me know that I was doing a good re-creation of the places.



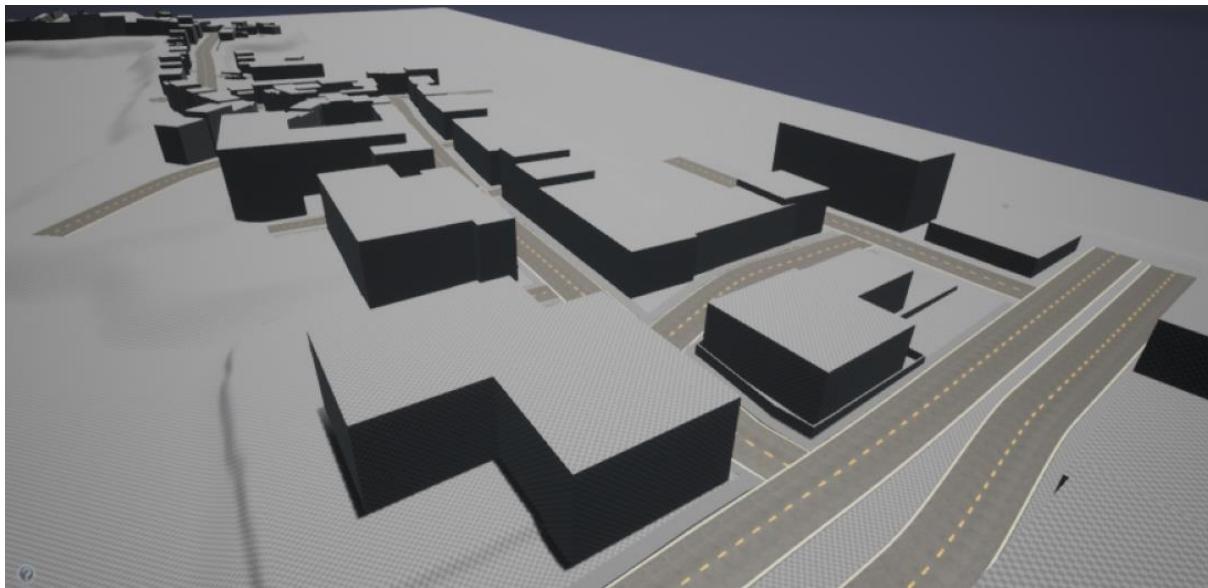
I also added the barriers that are at the end of the street where the university is placed, I think this helps sell the fact of where it is placed.



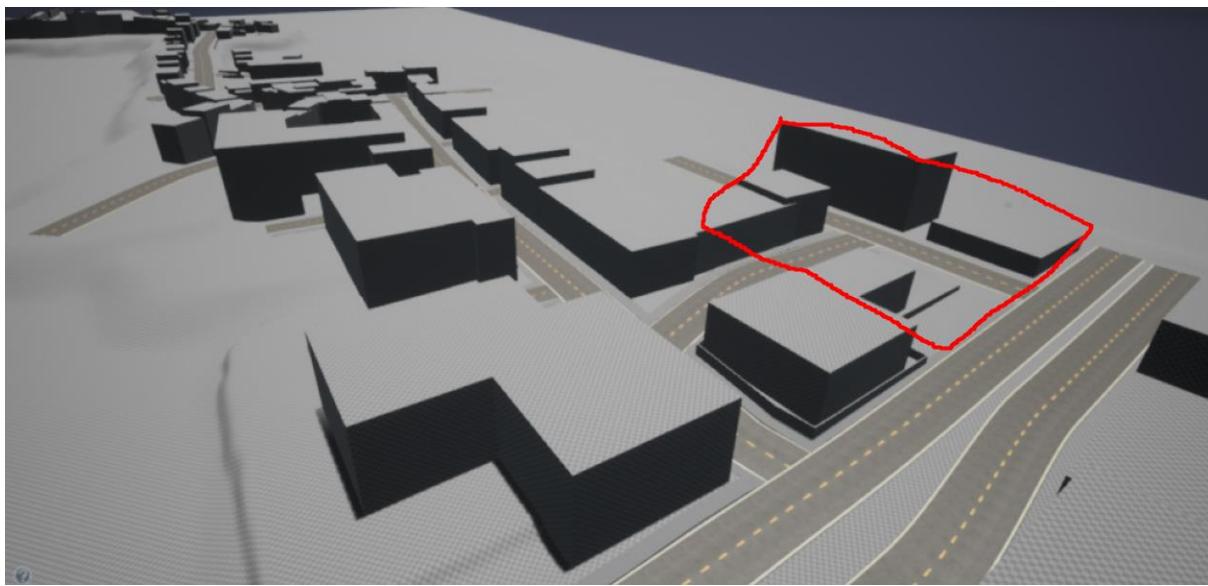
A shot from further up the road looking down to the barriers:



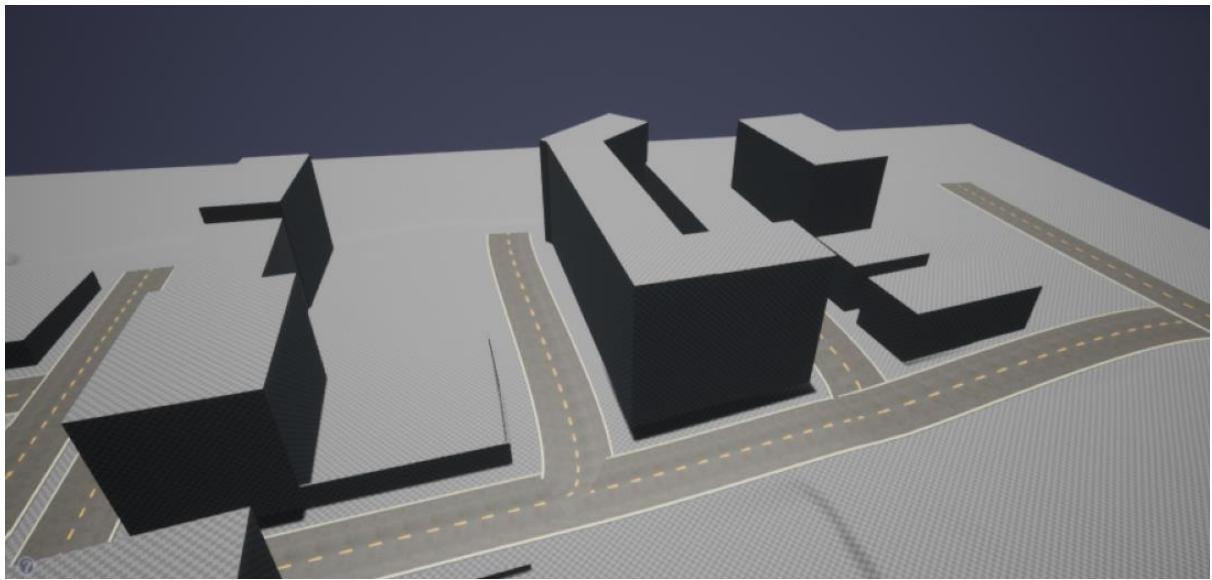
Nearing the end of the blocout process, I added more buildings around and off scene:



The area highlighted in red is not accessible, I added in the buildings just to build up the area a little more.



I built up the buildings in the finishing area, this is a large majority of student accommodation, the large buildings in the middle are the “Hub”, and the buildings to the right of that is “West One Properties” and “Keiller Court”, Keiller court is the smaller two buildings, with the smallest of them being the finishing building.



I then created a “lamppost” mesh in Blender:



For now, I only have them set-up at the start, but I will add them around the whole map a bit later on, I will add spotlights to them as well, although this will take time as I will have a lot of light building to do.

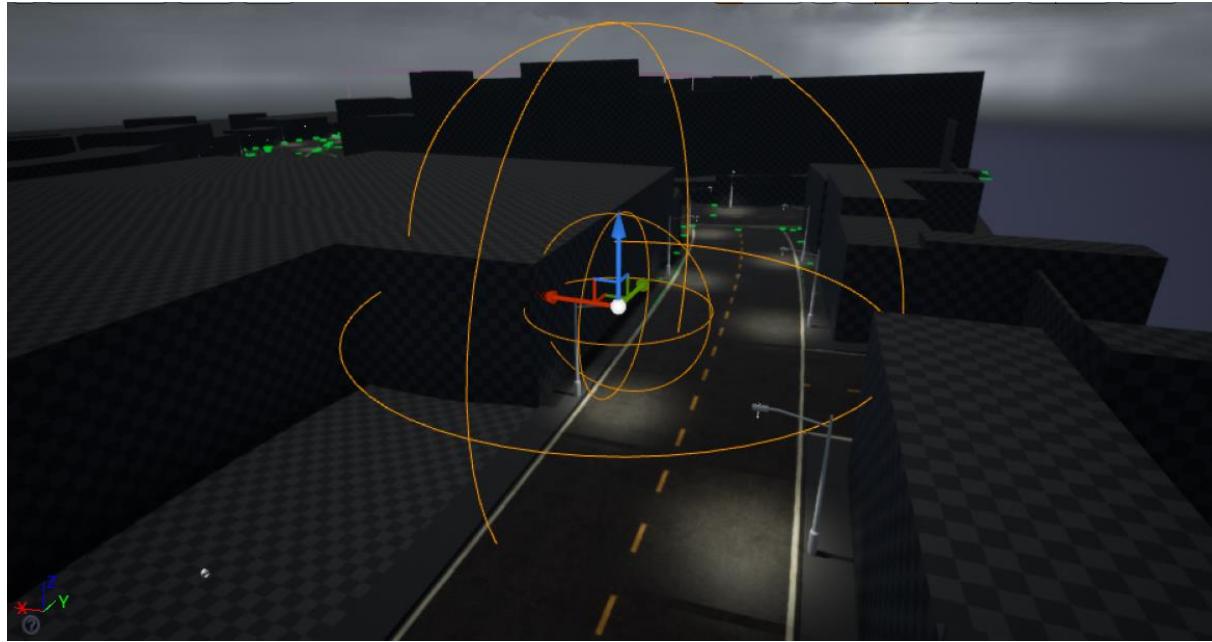
I also went back and revamped the pathing like I mentioned I would do, using the spline tool to re-create it.

I then filled in the starting in area with this lamppost, I added spotlights to them and moved them into place:



Near the end of this road I also added a flickering light, blueprints can be found in the blueprinting section. I added audio to this area.

Audio Source: [https://freesound.org/people/deleted\\_user\\_228014/sounds/420651/](https://freesound.org/people/deleted_user_228014/sounds/420651/)



The above image shows the attenuation radius of the audio cue, this allows for the audio to be generated from the centre spot, so when the player approaches this area, it starts off soft and the closer they get the louder it is perceived as well as the location of the audio.  
(A better preview of this can be found in the play-through video.)

I then added an ambient wind sound, I set it to loop and the volume to 0.1 as it is supposed to be subtle:



I did not have to adjust the attenuation on this audio source as leaving it applies it the whole world.

Audio Source: <https://freesound.org/people/nsstudios/sounds/479192/>

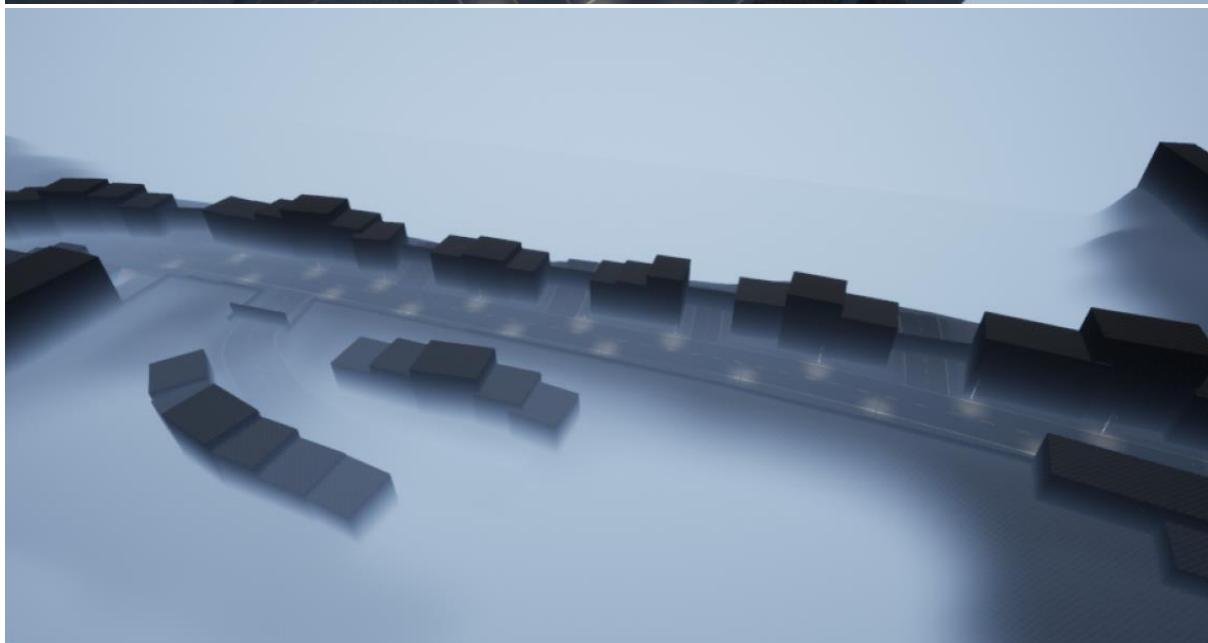
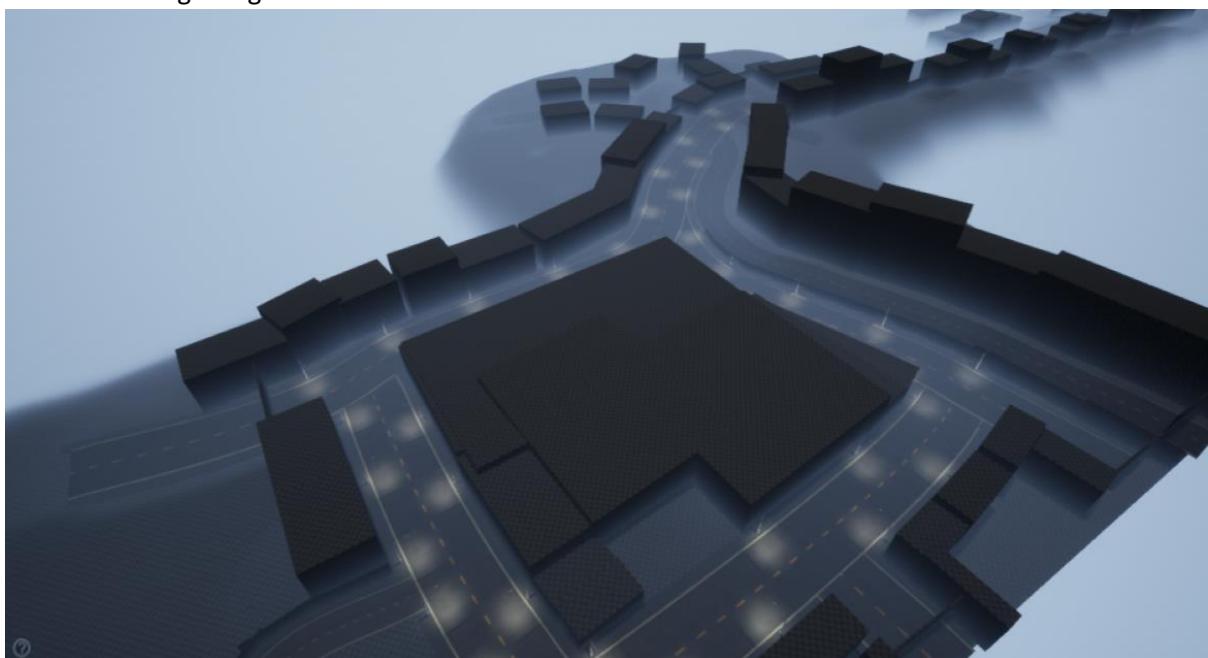
I then added some exponential height fog to my scene:

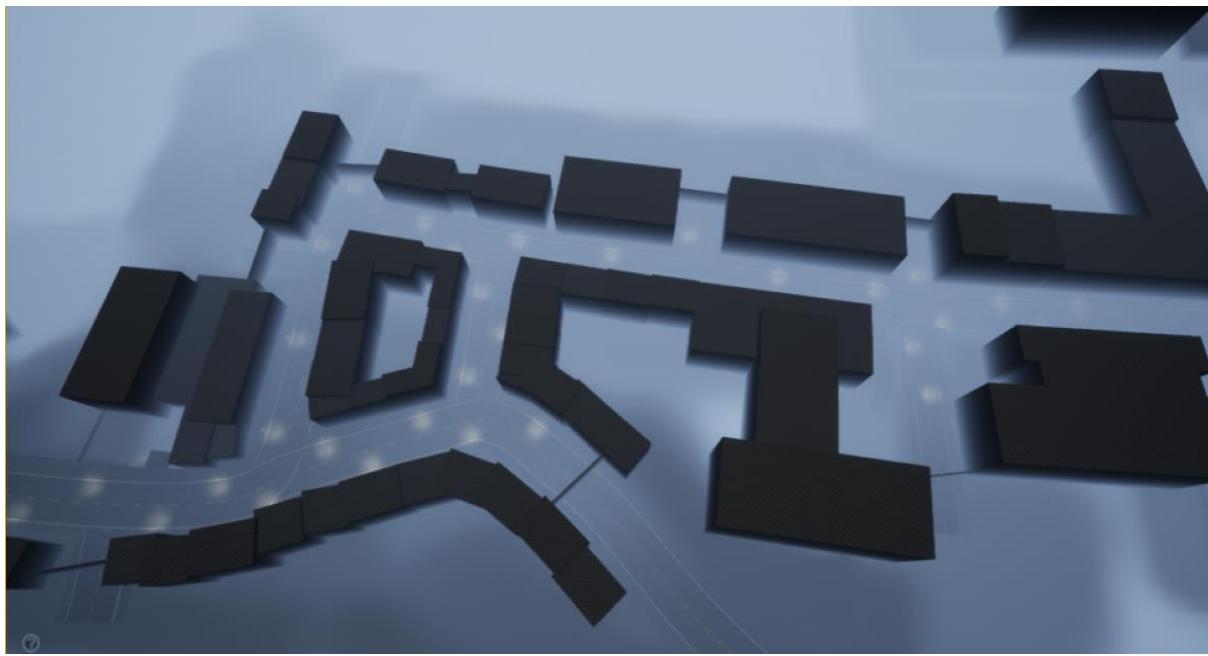


It took some adjusting to get it right, as the lower you go the denser it is so towards the end it was very dense, so I had to thin it up a bit.

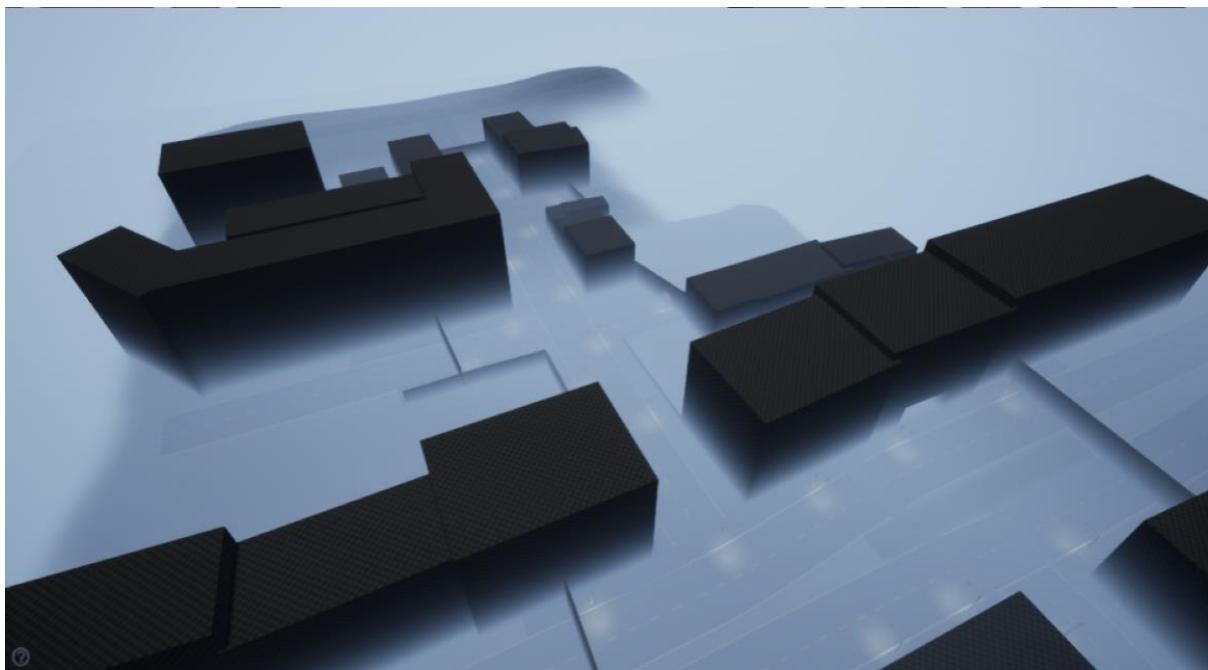


Added more lights around the paths, added in “boundaries” using bsp brushes to close off the roads, I did this after getting some feedback.



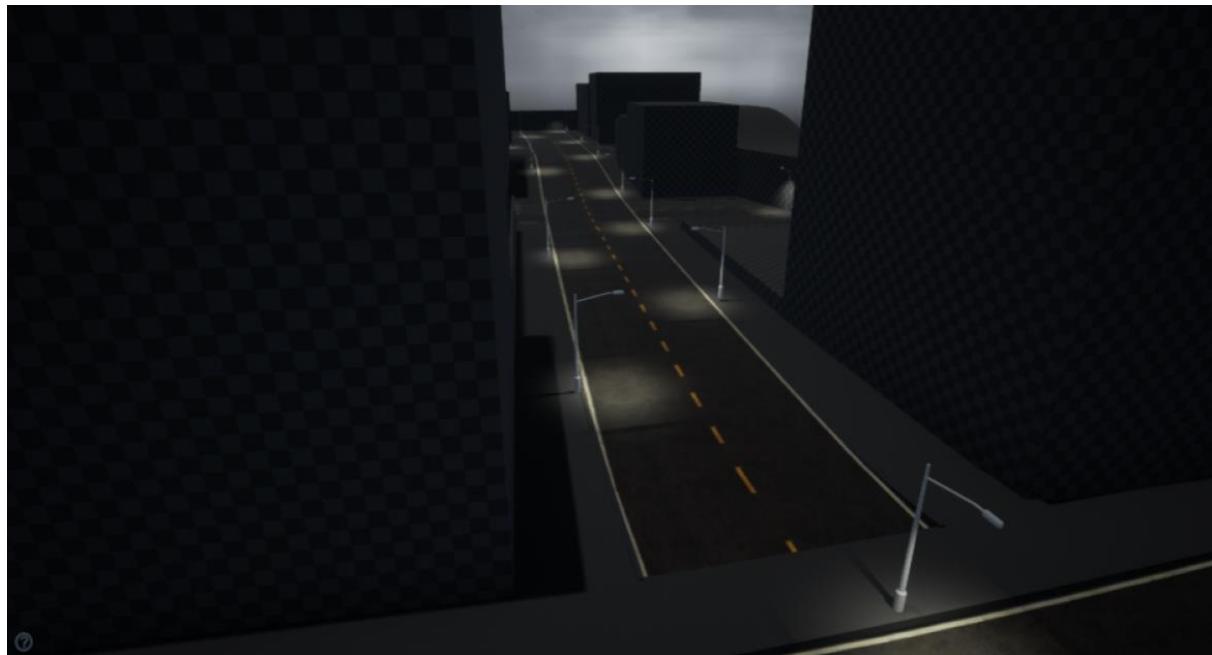


From this view you can clearly see the “boundaries” I added, I know they do not look amazing but as mentioned on the feedback it is just to show that it is not accessible.



In the above screenshot I finished blocking out the ending area, added the last of the buildings and barriers in.

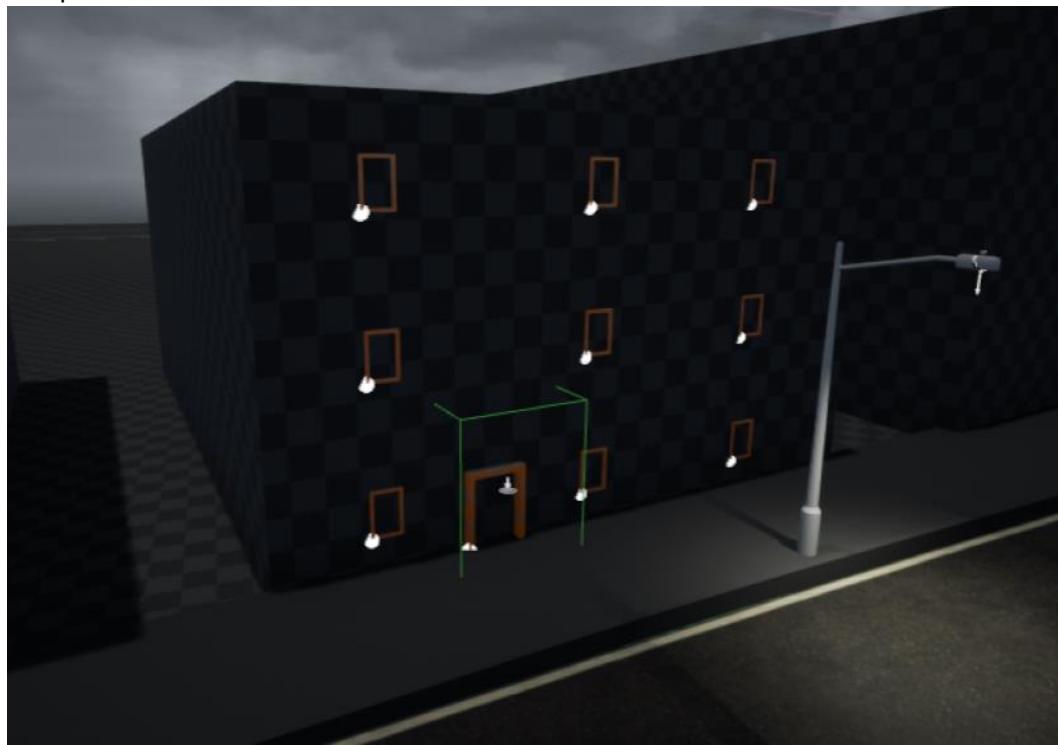
I added pathing into the newly blocked out areas as well as the streetlights.



With this the blockout process is done along with the pathing and lights being added, it took some time to do and I will go back over and change changes if I see fit.

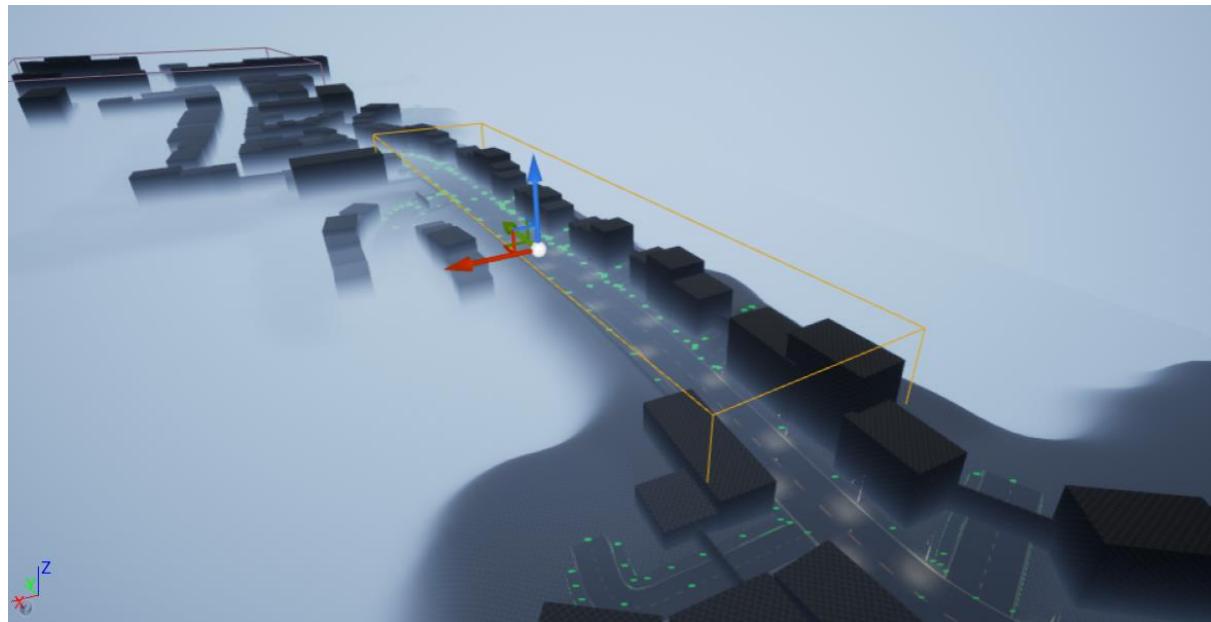
Building the lighting took its time I done it in intervals of 500ish at a time to reduce the stress my pc was under as beforehand I did crash while trying to build.

For the ending area I then went and added a door frame and some windows, I also set-up a trigger box that when the player enters it takes them to the game over scene, which is documented in the blueprints section:

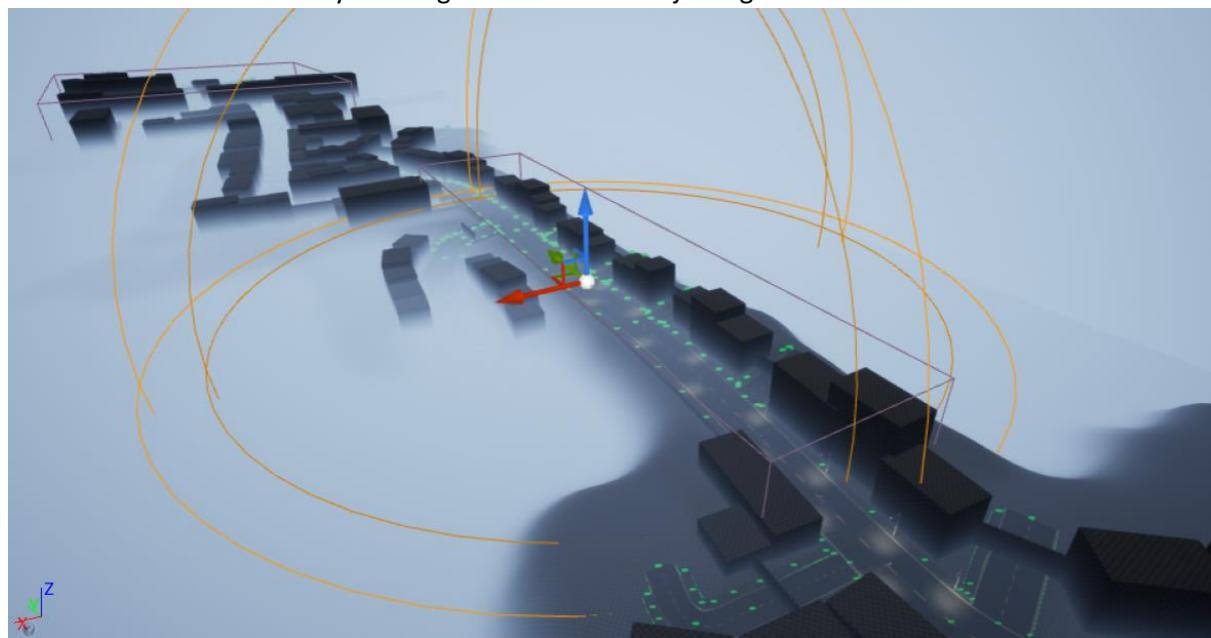


I also adjusted the height of this building as it was not currently proportioned for the 3 floors it has.

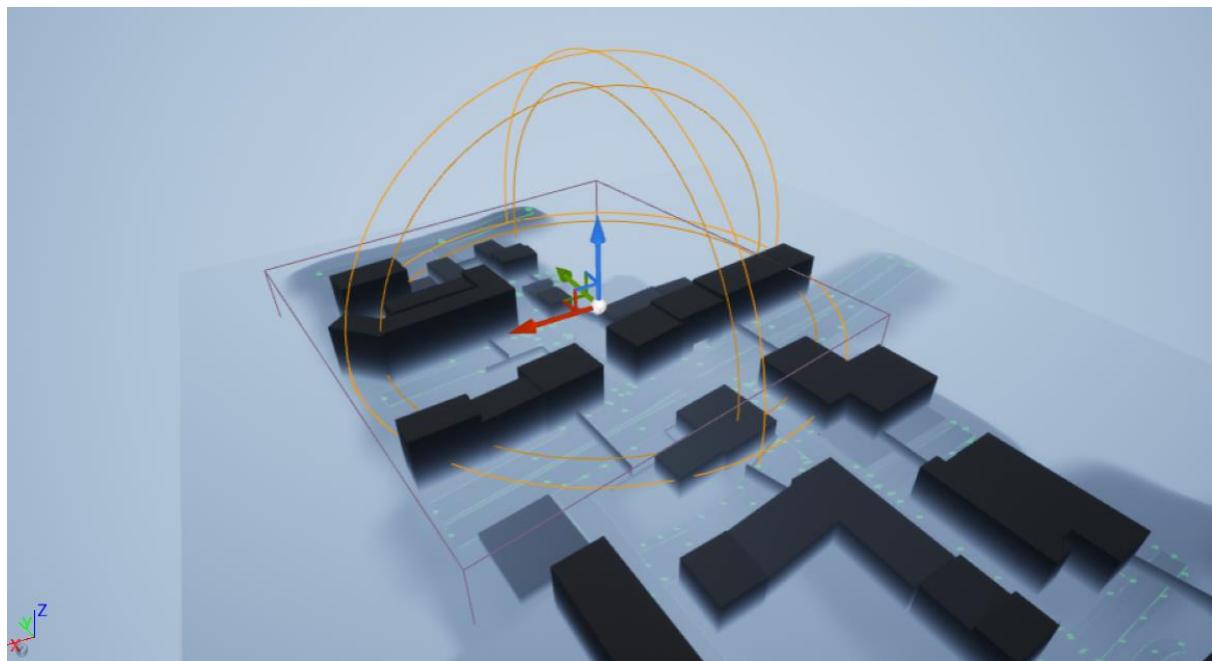
I then created a rain material; I assigned this material to a post process volume:



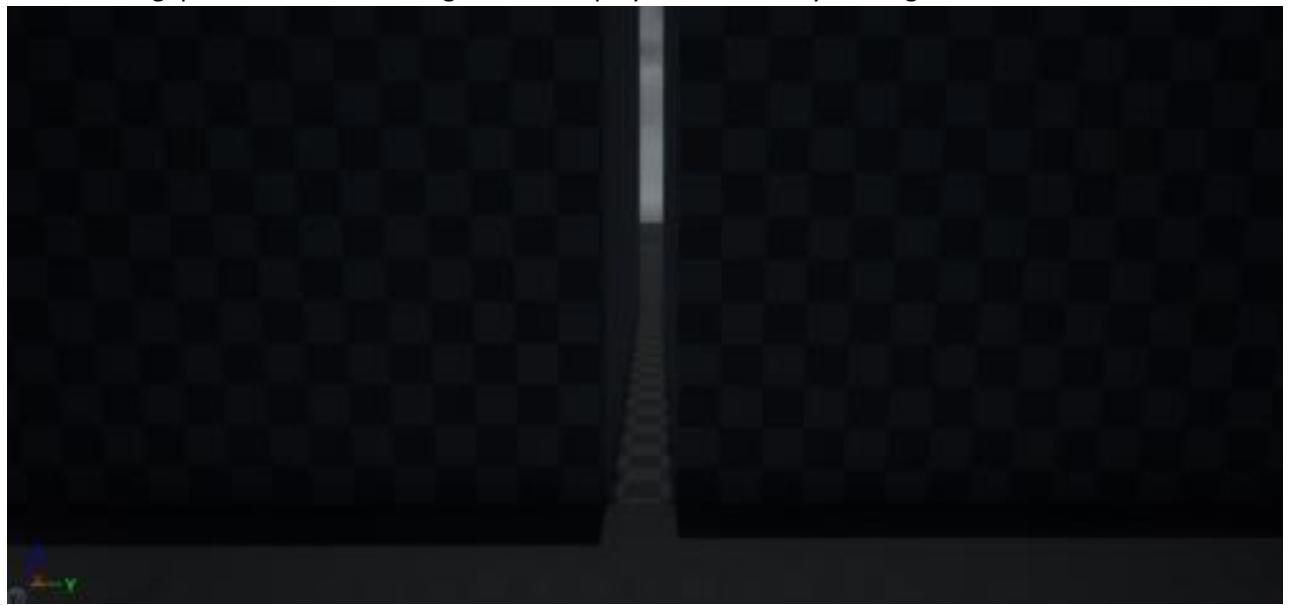
I added audio to this area by creating a wind cue and adjusting the attenuation radius:



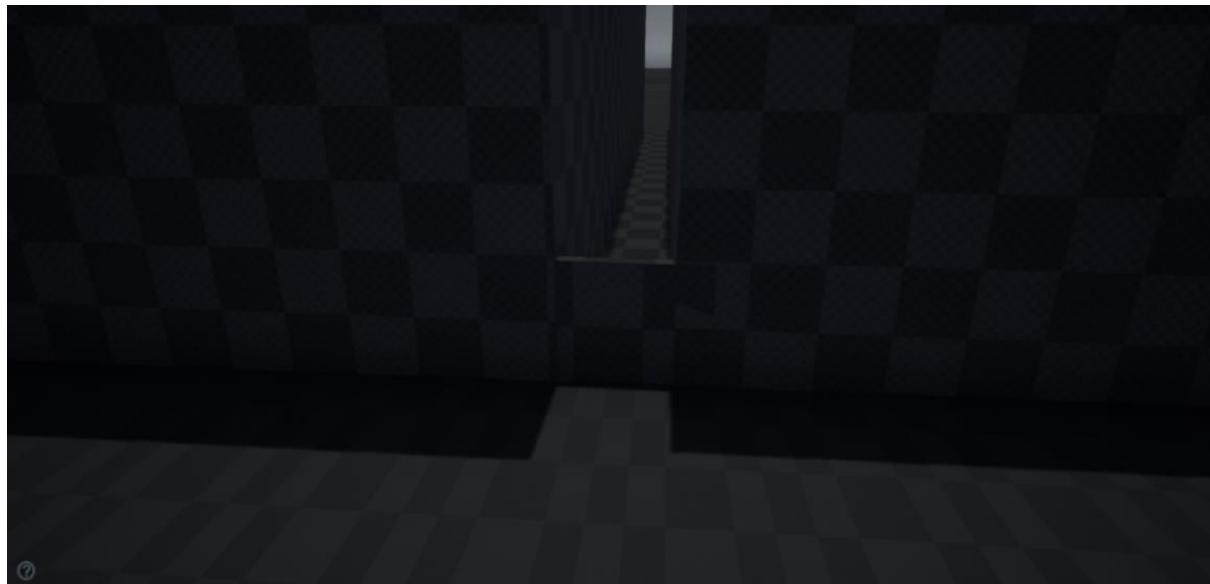
I then did the same for the ending area, I simply duplicated the volume and audio, scaled and placed them where I wanted:



I then played through the level seeing how everything was, I discovered a section nearing the end, there was a gap between the buildings and if the player went in they would get stuck:



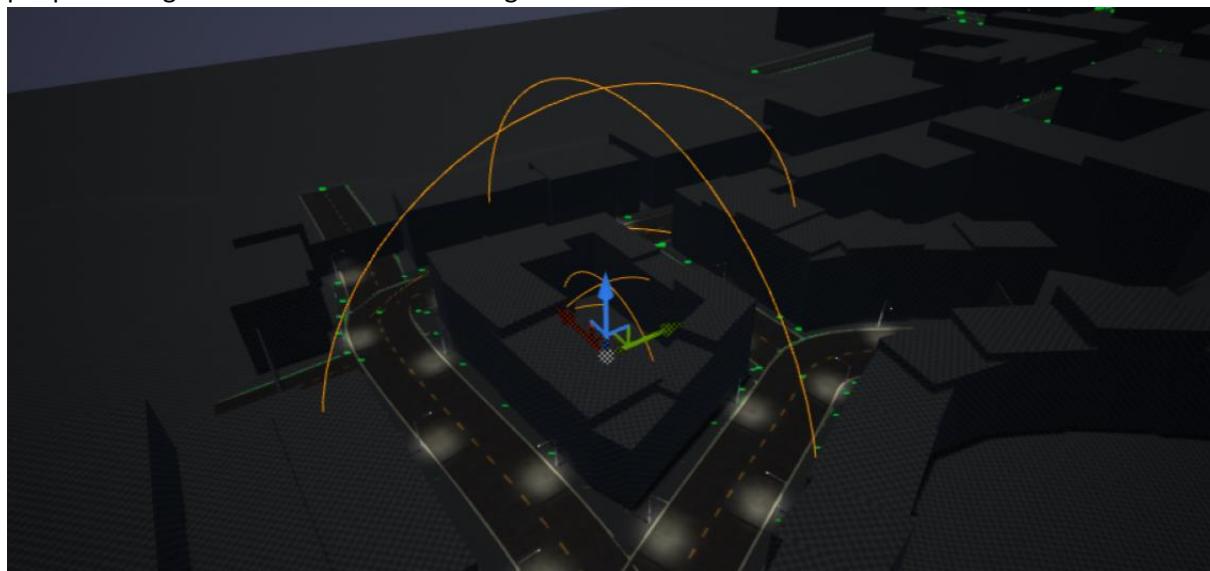
I then added a little blockade to stop this from happening:



The barriers I placed at the end of the University road were too tall, so I slimed them down:

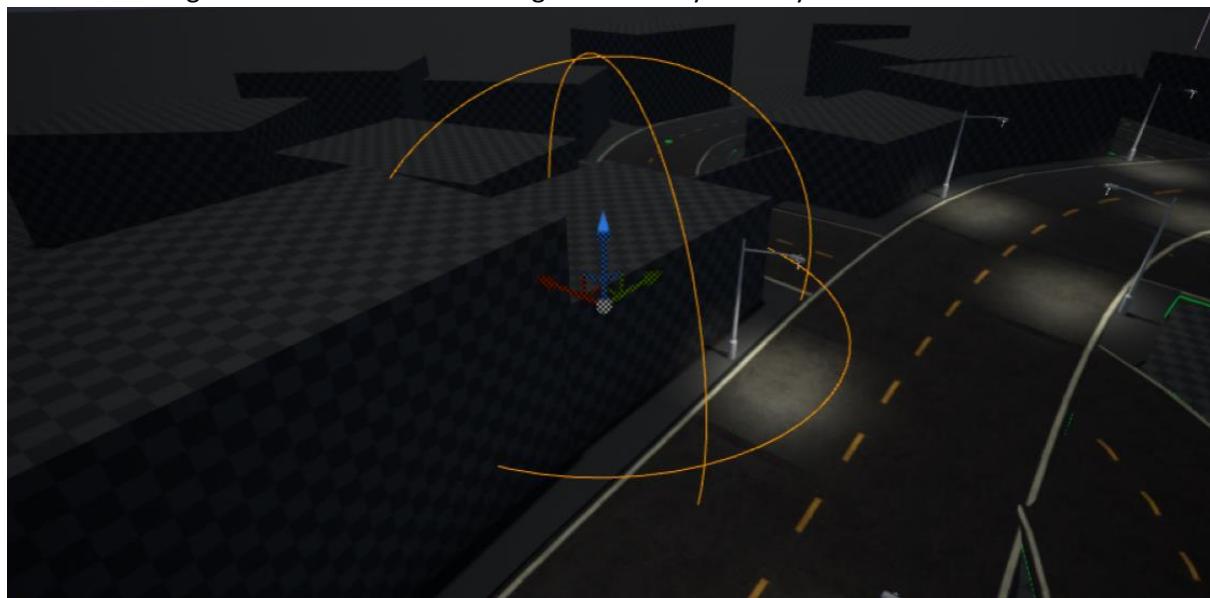


I wanted to add more audio throughout to add a little more to the level, so I added a crowd of people talking in the centre of this building:



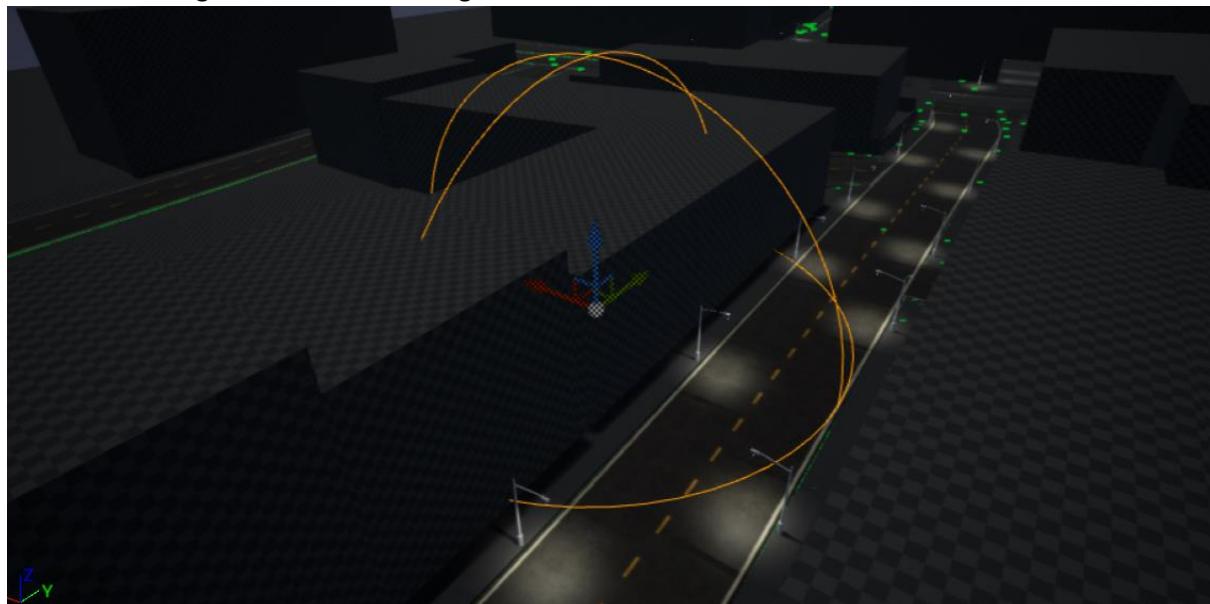
Audio Source for above image: <https://freesound.org/people/clawbase/sounds/240310/>

I added some “generator” audio to a building around early-midway of the level:



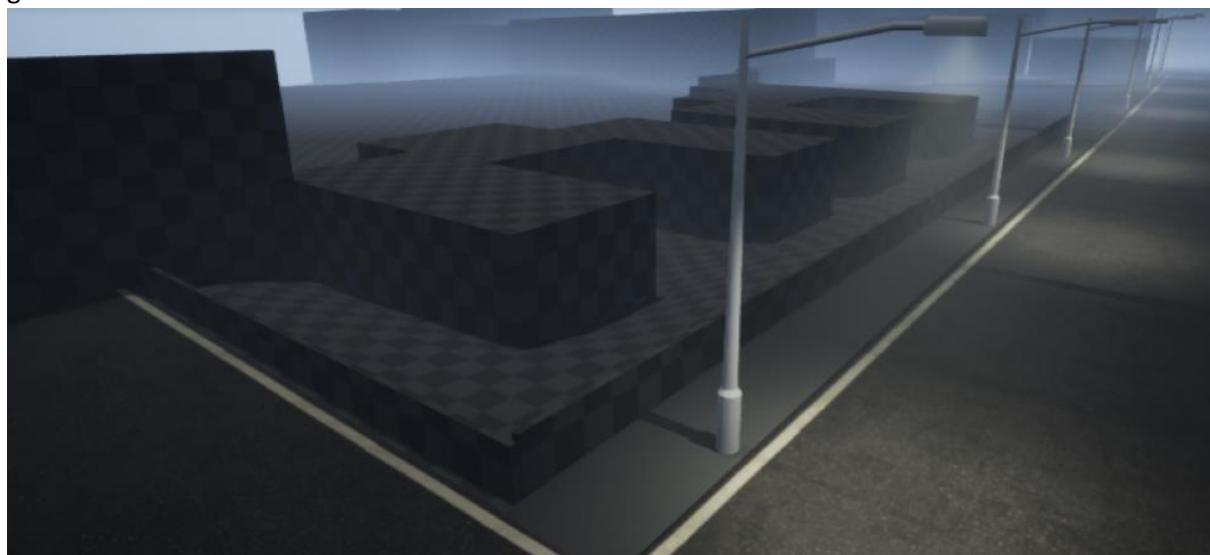
Audio Source for above image: <https://freesound.org/people/tosha73/sounds/495710/>

I did the same again in another buiding near the end:

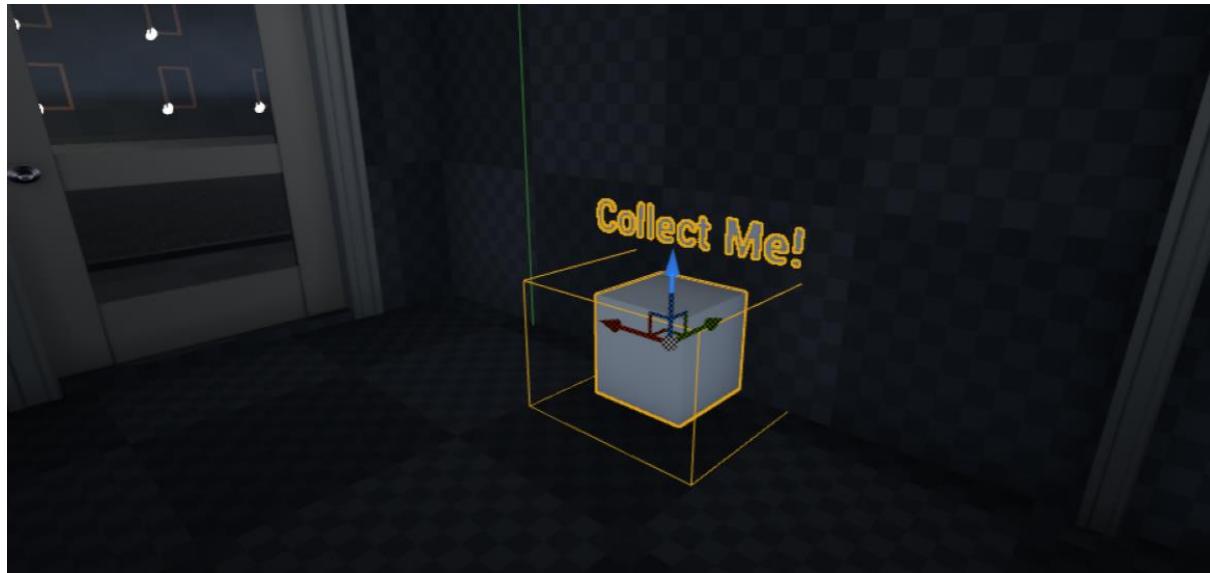


Audio Source for above image: <https://freesound.org/people/tosha73/sounds/495710/>

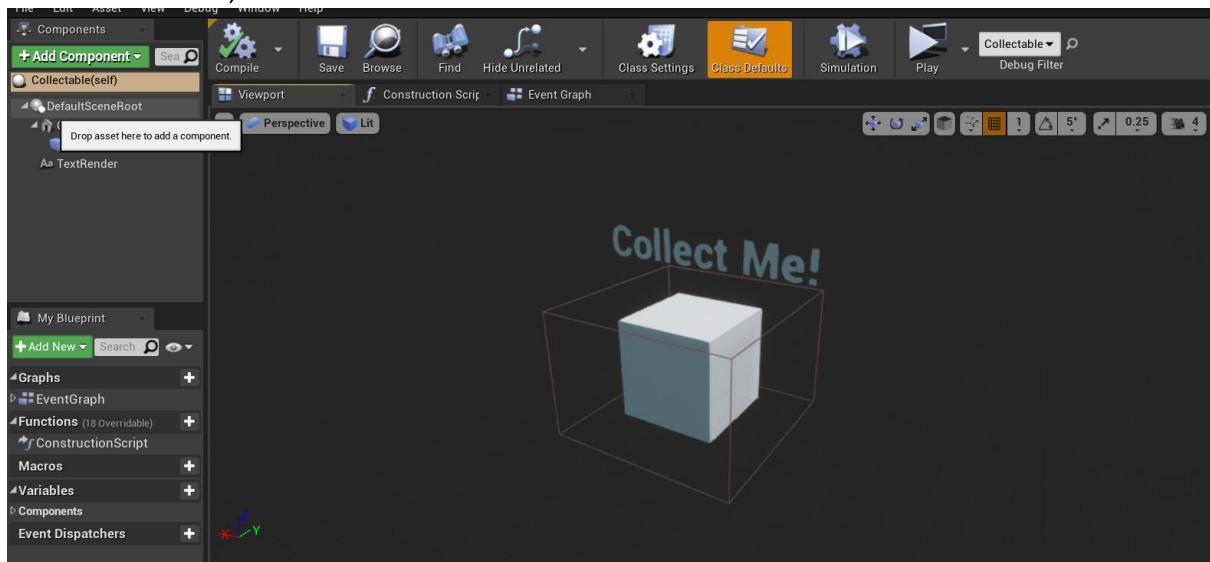
I then went back and added a small wall to the side of this path where two buildings dip into the ground:



I then created a new actor blueprint to create a “collectable” object:



It consists of a cube, box collision and a text render:



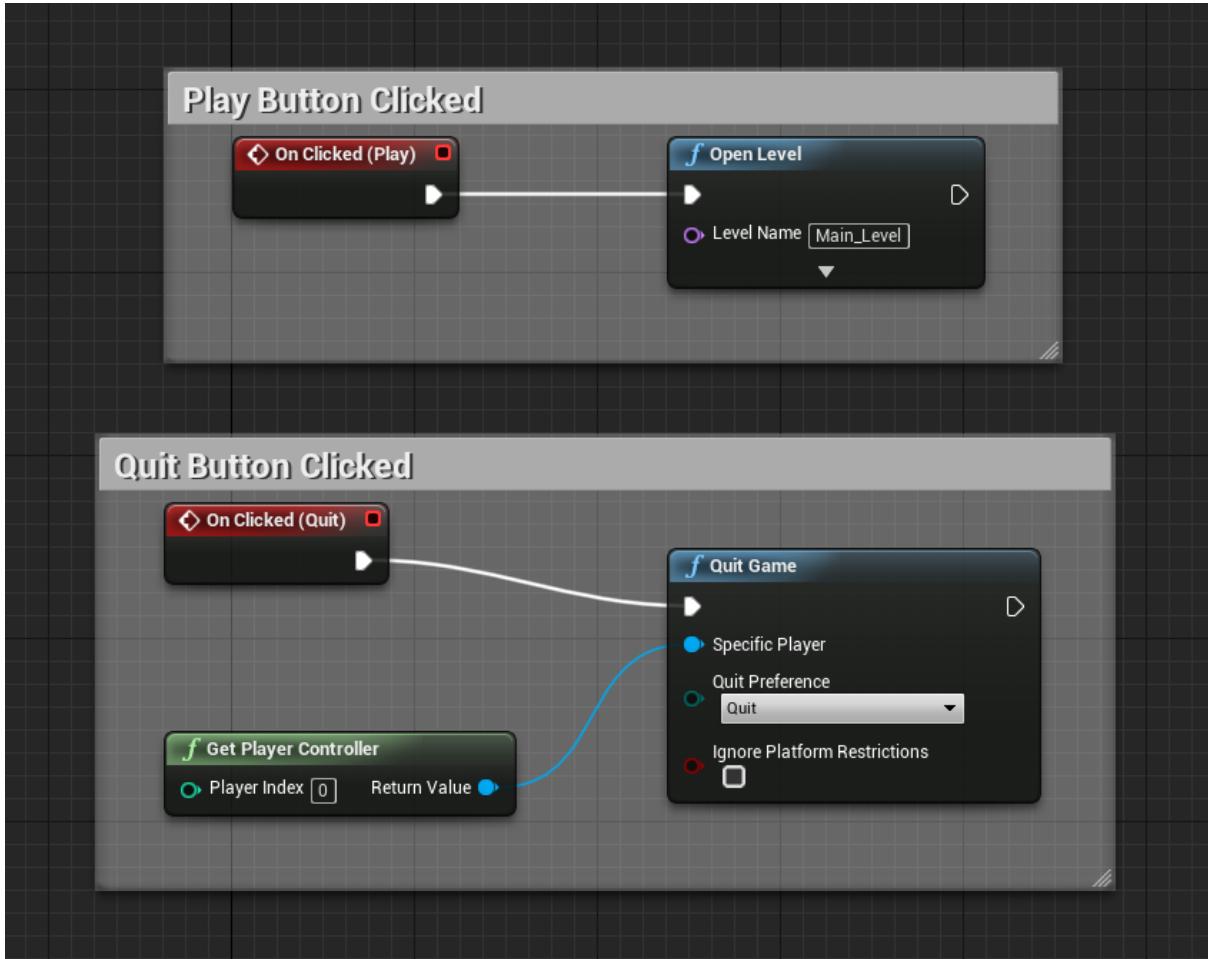
All I want this to do is allow the player to collide with it, it to disappear and create a UI widget to tell the player it was collected.

It took a few attempts to get correct. I had to just mess around with the blueprints to get it to work, I used what I had gained so far throughout the project to create this.

# Blueprints | Materials | Animations

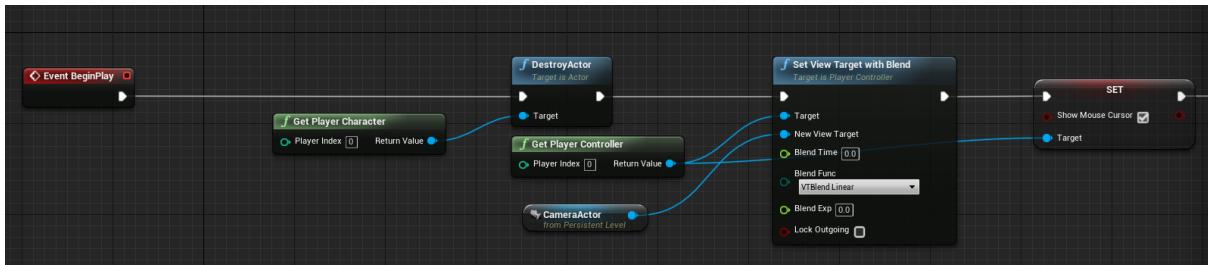
## Blueprints

Main Menu Blueprints:

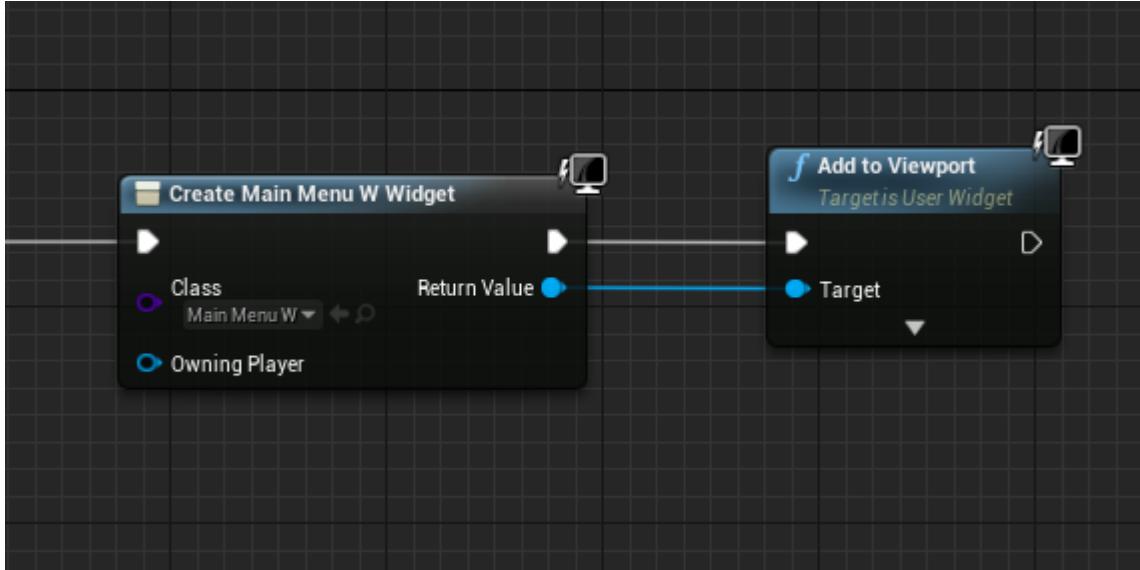


This is a very simple use of blueprints, when the player clicks the “Play” button it calls the open level function which I have assigned to “Main\_Level” and opens it. The quit button works more or less the same, the only difference being the node is already built to quit, all I had to do was add the player controller to it.

I then had to make the mouse cursor actually show on the screen, this was done by destroying the player controller, setting the view target with blend, so replacing the character controller with the camera I had setup, then turning the mouse cursor on.

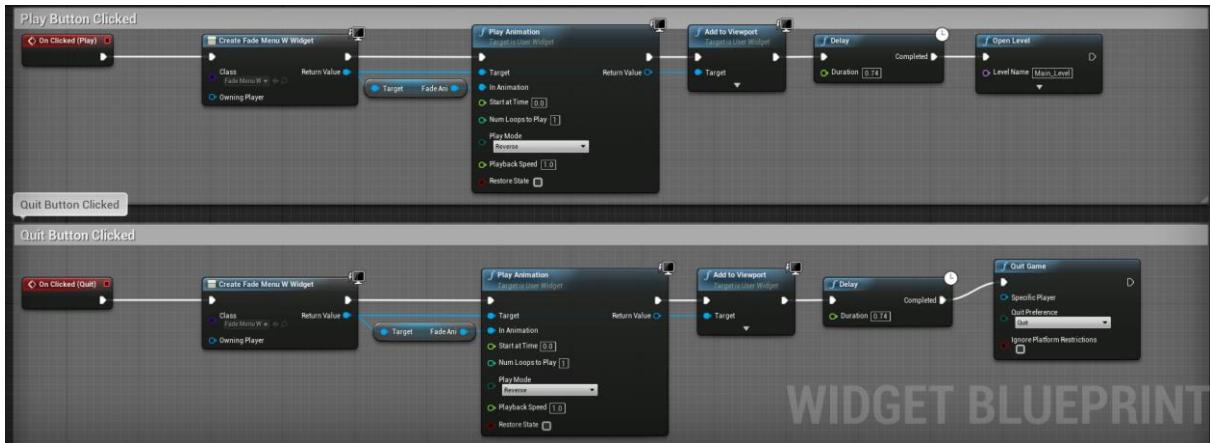


The I just had to add the main menu widget to the viewport:

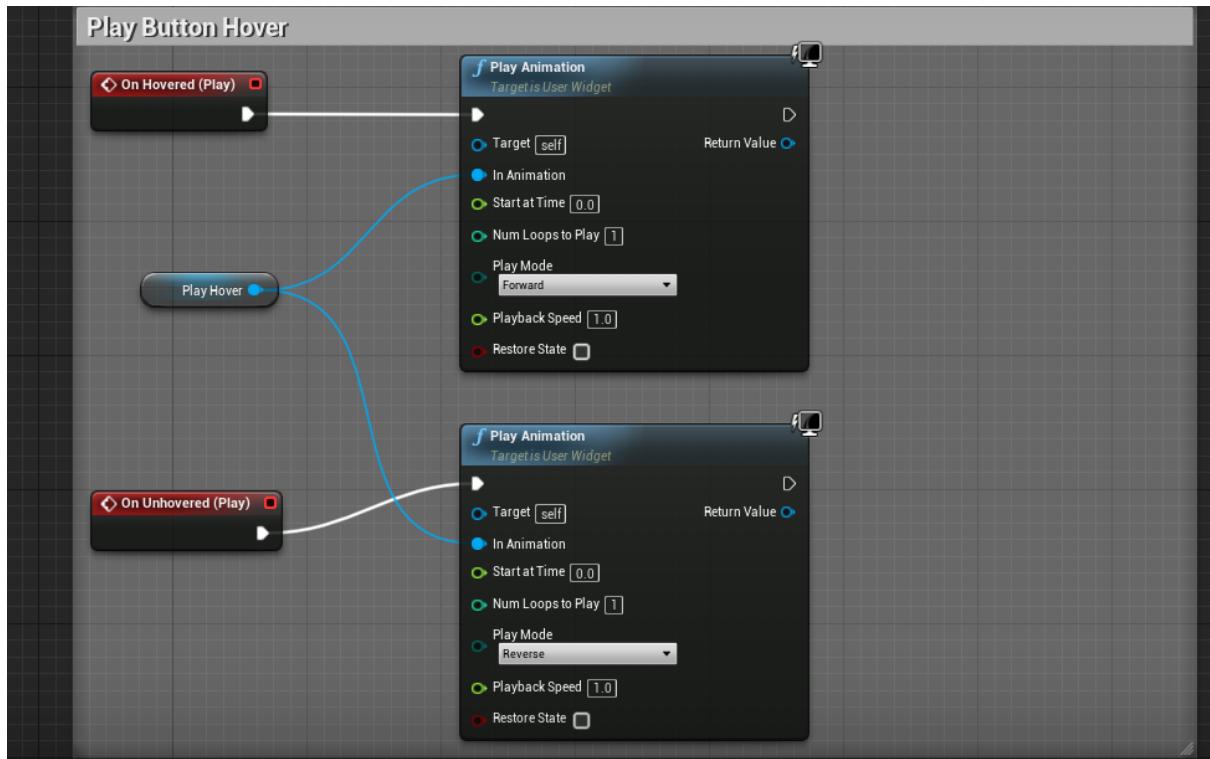


### Main Menu Re-creation Blueprints:

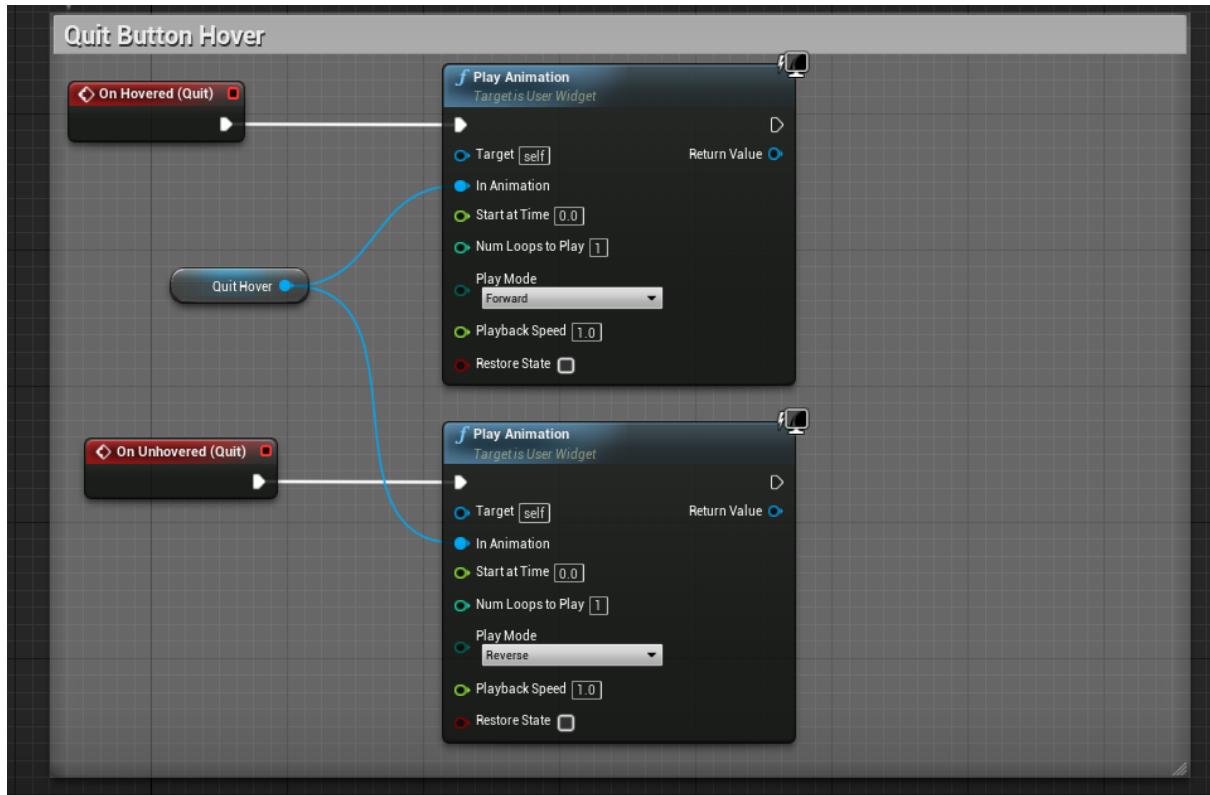
The iteration of the main menu can be found in the “iteration” section of the document.



The above screenshots show the blueprints for the new main menu, it works the same for both buttons where it creates the two widgets, the menu itself and then I added my fade\_Menu widget, it then looks for the fade animation I created and plays that animation, adds it to the viewport then 0.74 seconds into playing it, it opens the “Main\_Level” and for the quit button it fades out, wait’s 0.74 seconds then closes allowing the animation to play.



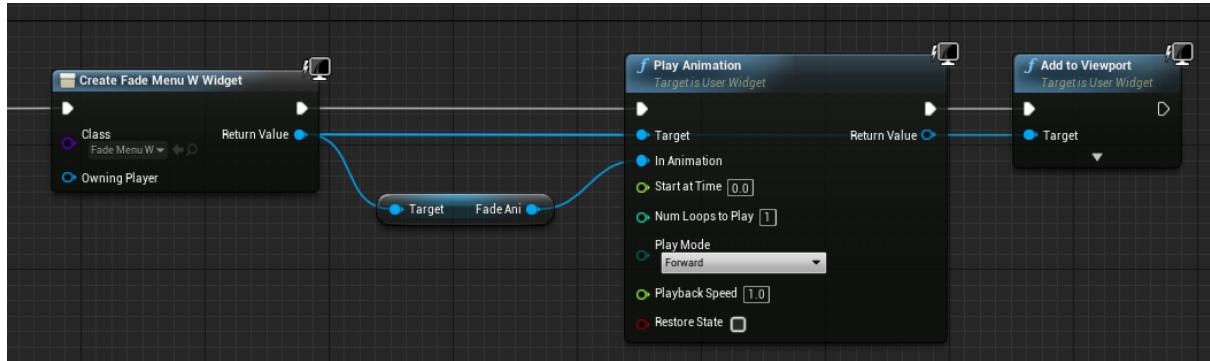
The play button hover blueprints call the hover animation I created when iterating my menu, and then plays the animation forward and in reverse when unhovering.



The quit button works the exact same way, it just calls a different animation.

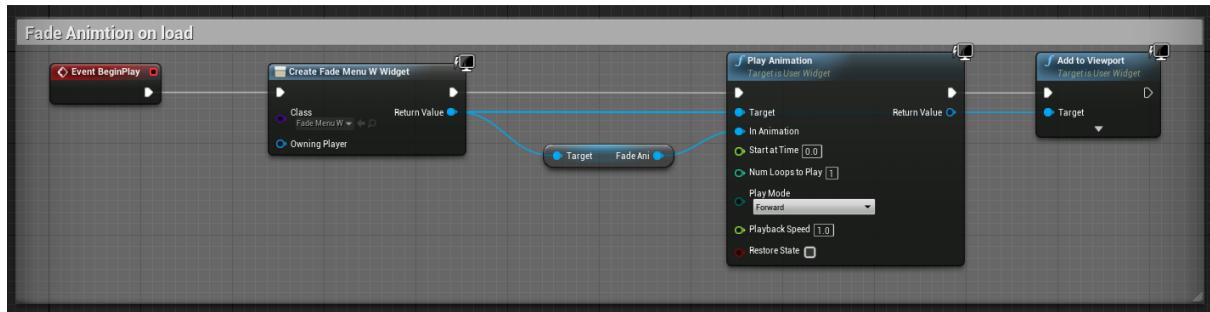
### Main Menu Fade in Blueprint:

To get the fade animation to play I just had to add it to the already existing viewport, I did this by simply creating a new widget and assigning it to play the animation with the target animation being the fade animation:



### Main Level Fade in Blueprint:

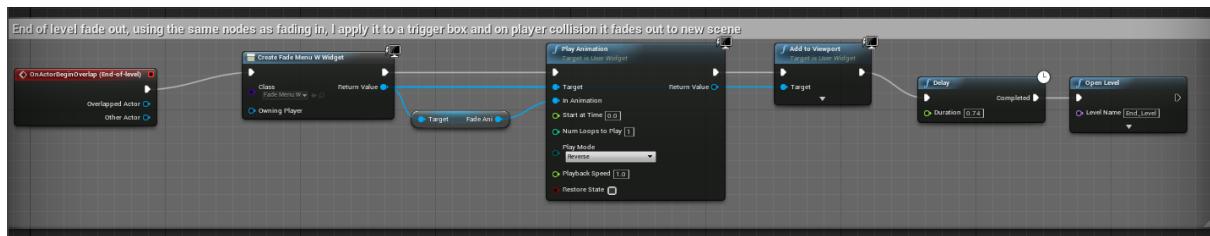
To follow along with the fade animation, once a new scene is loaded in the fade animation also plays there:



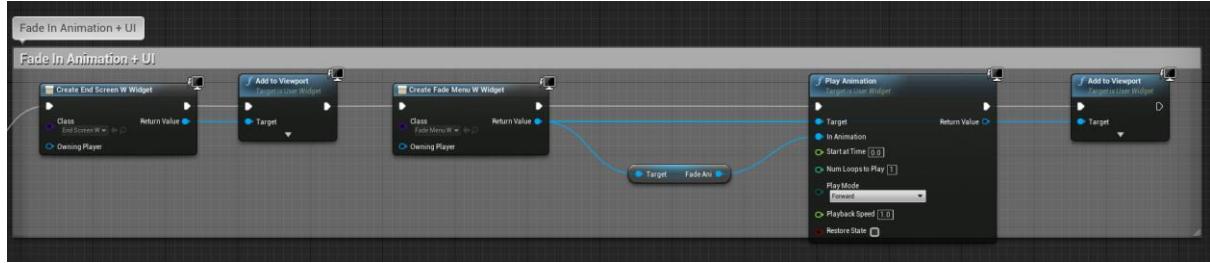
I added this event to the main level start and end, as well as the end menu, it also loads this animation when it loads / unloads the scene.

### Main Level Fade out in Blueprint:

As mentioned above the end level is a trigger box that when the player overlaps it calls the fade\_menu widget, which plays the animation, adds to viewport with a delay before changing scenes, in this case it changed the scene to the end\_level.

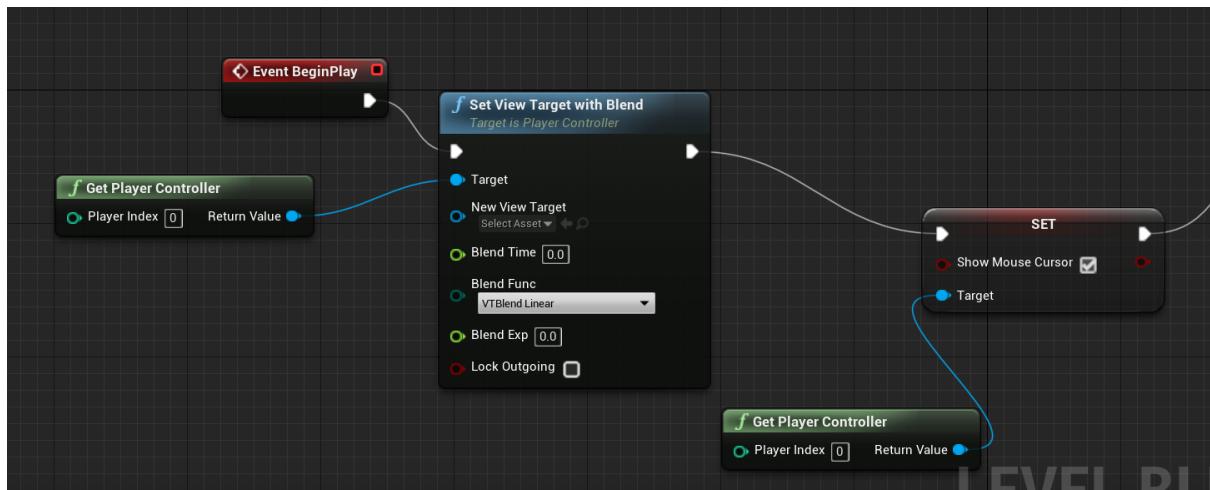


## End Level Fade Blueprints:



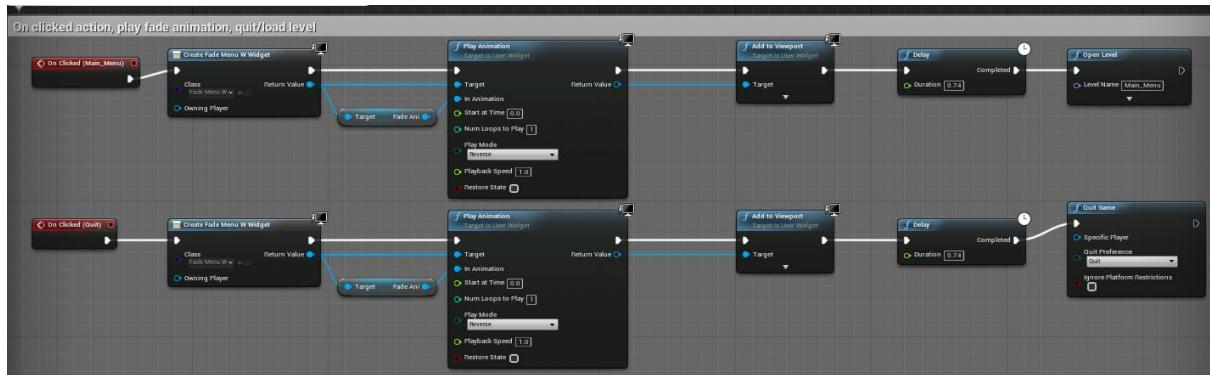
The end level blueprint loads the fade animation I created when the scene is loaded, this works the same as the other fade in/out animations.

The issue I had was the mouse cursor was not being displayed so the player could not actually click the buttons, this was a simple fix:



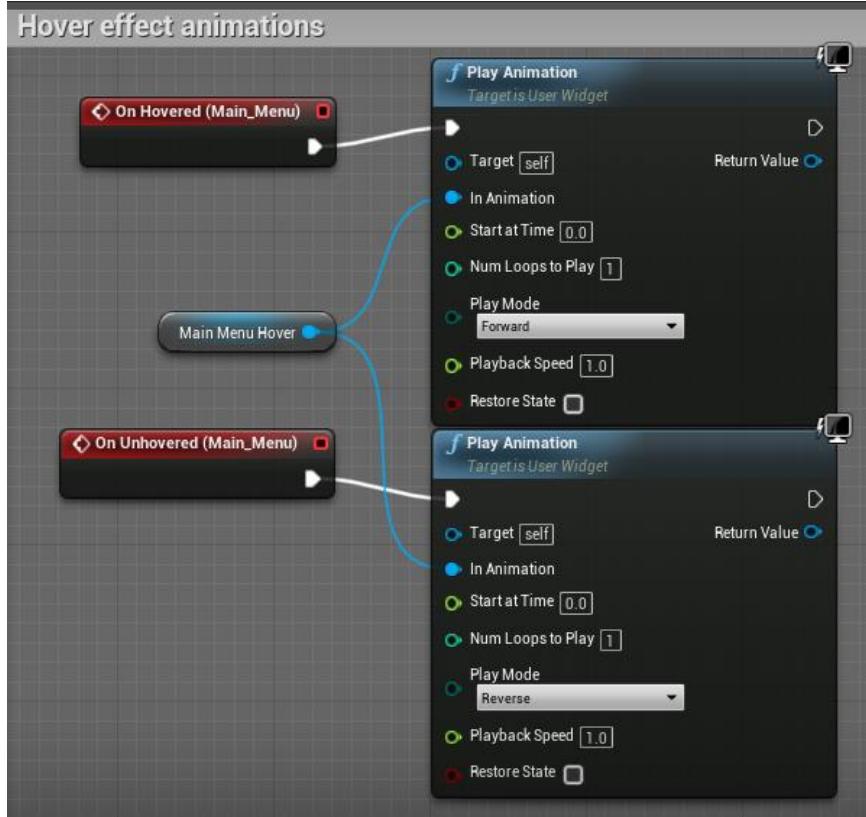
Just like in the main menu, I had to set the view target and get the player controller which I then blended with the mouse cursor being enabled.

The end menu also has a fade animation when either button I clicked, this works like the other menu, I have fade animation play when the button is pressed, depending on what button is pressed it will load a new scene or quit.

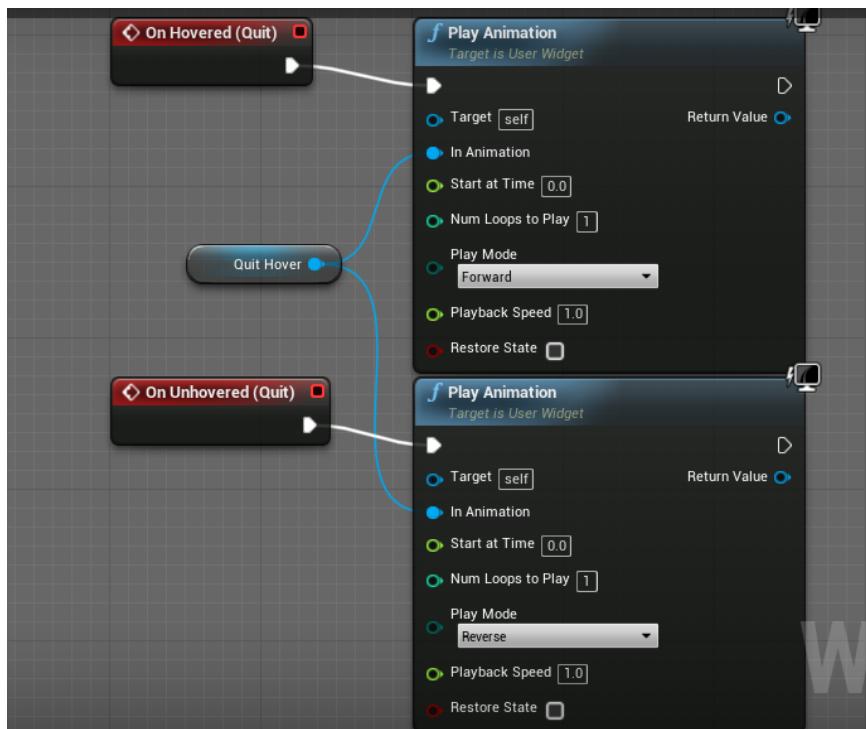


I created hover effect animations for this menu as well, they work just like the main menu:

### Hover effect animations



The above image is using the “main menu hover” animation to play.

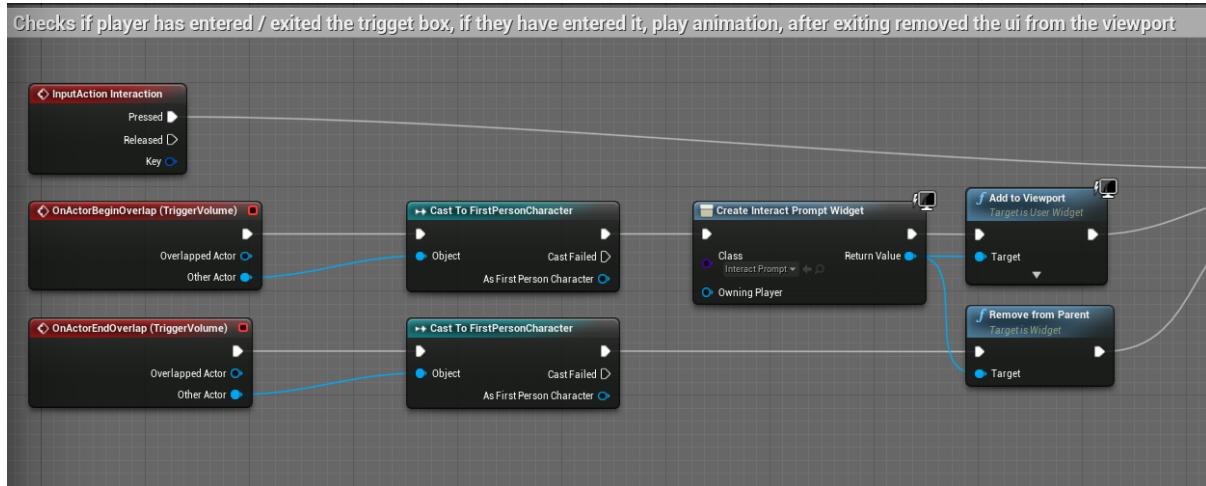


The above image is using the “quit hover” animation to play, both animations are the same I just duplicated the original animation and re-assigned the text block to the quit button, which is handy and saves time.

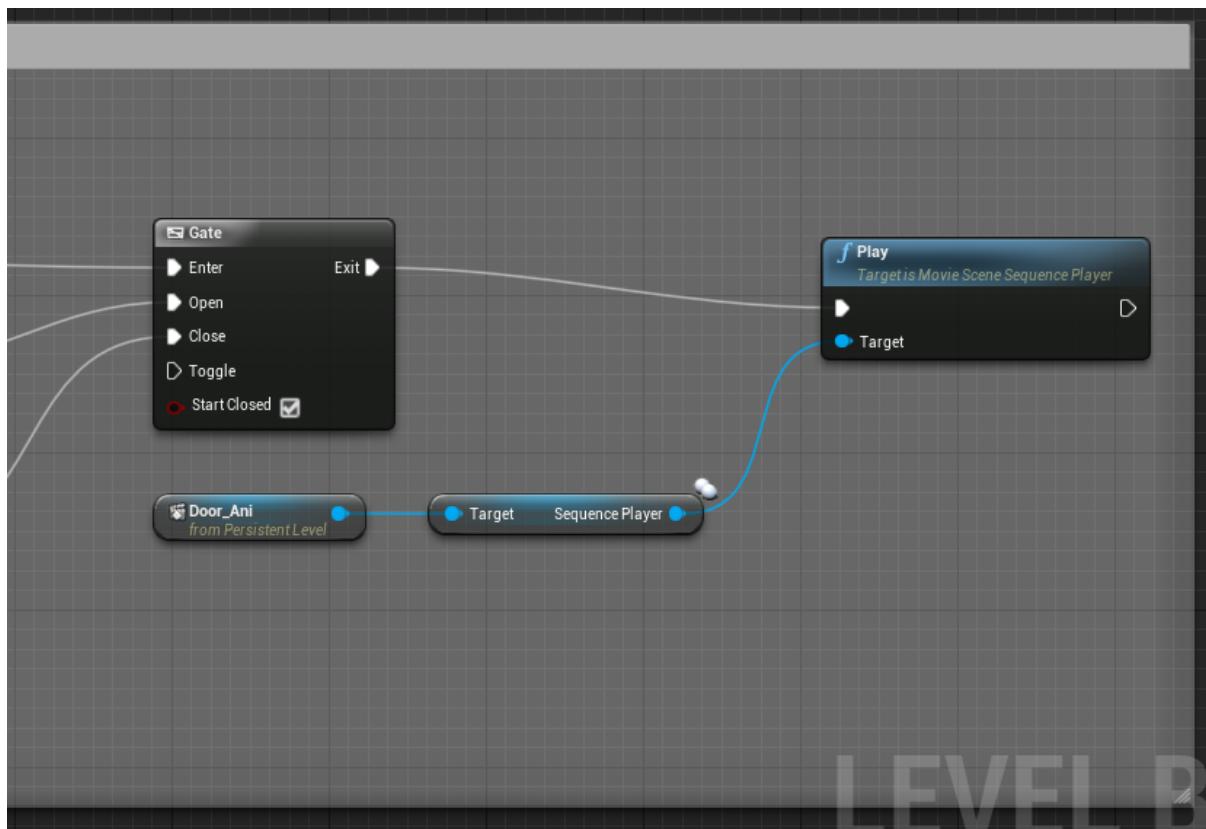
## Door Blueprints:

For creating the door I did follow the tutorial the lecture had up but it didn't work out as well so I then followed this tutorial: <https://youtu.be/-aApmzxI874>

In both tutorials I did have issues of the door still being able to be opened outside of the trigger box, I was able to resolve this issue using the below blueprints.



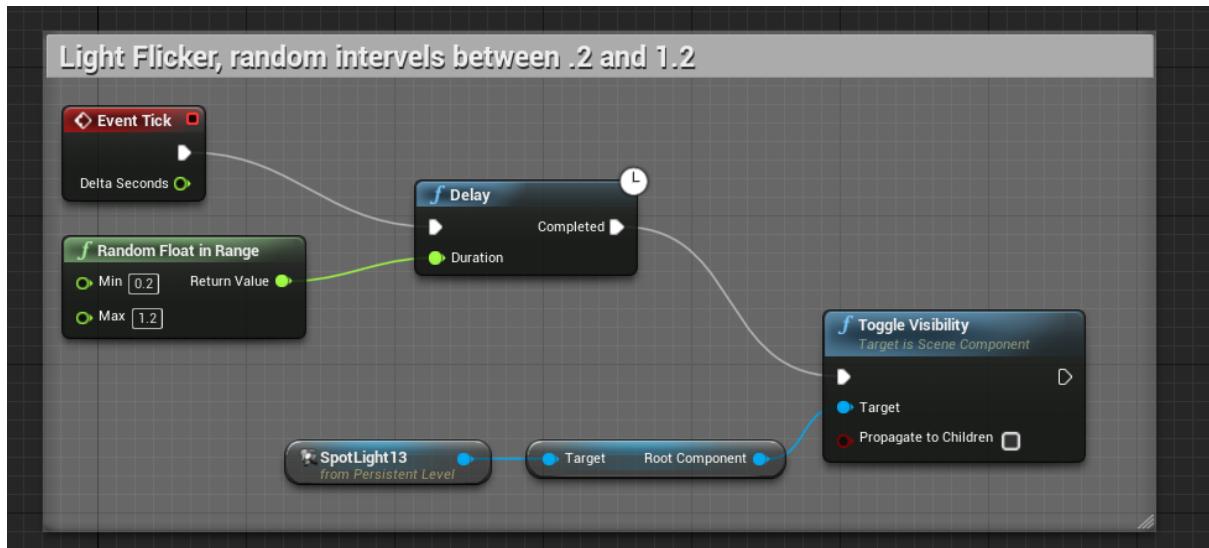
Since I wanted the player to be able to press a key in this case “E” to open the door, I need to register an event of the player entering/exiting a trigger box which allowed the player to then open/close the door. I also added a UI widget that lets the player know when they can open the door as once, they enter the trigger box it displays “Press “E” To Interact” at the bottom of the screen.



I then used a gate which is a form of flow control, this allows certain execution flow, so I attached the “E” interact key to the enter point and the enter/exit events to the open/close which allowed the flow to work and the UI Widget to be displayed and the animation on be able to be played when I am inside of the trigger box.

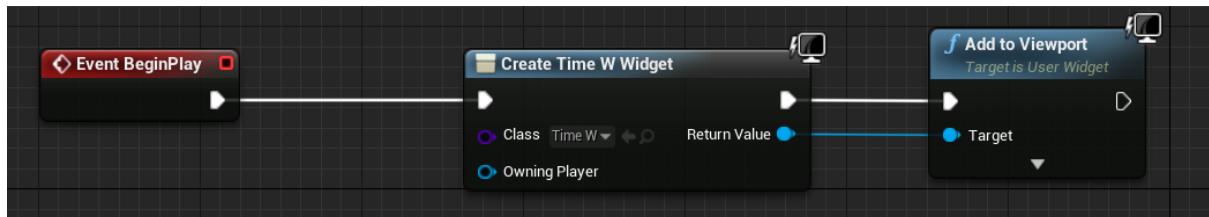
### Lamppost Blueprints:

This blueprint is taken from one of the weekly tutorials, I used this to make one of the lights flicker on/off every tick, it flickers between 0.2 and 1.2 for some slight variation, this then connects to the delay node which dictates the visibility of the light.

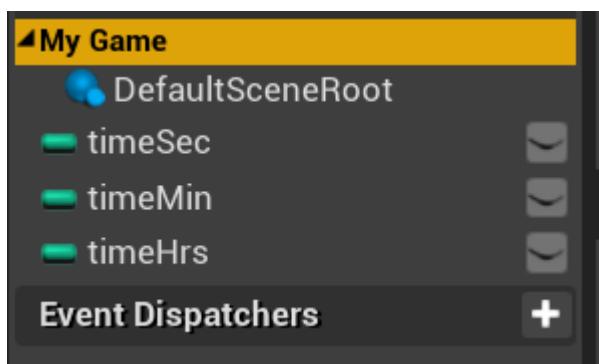


### World Time Blueprints:

For a bit of extra blueprinting, I wanted to create a widget that displays the world time, I created a UI widget firstly and connected it to the viewport:

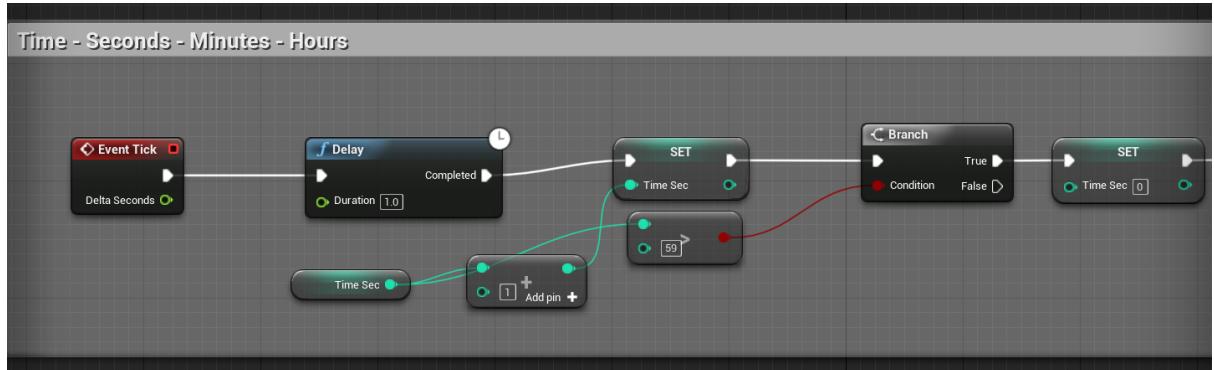


I then created three variables for seconds, minutes and hours. These would allow me to then bind to the UI text and adjust it each second.

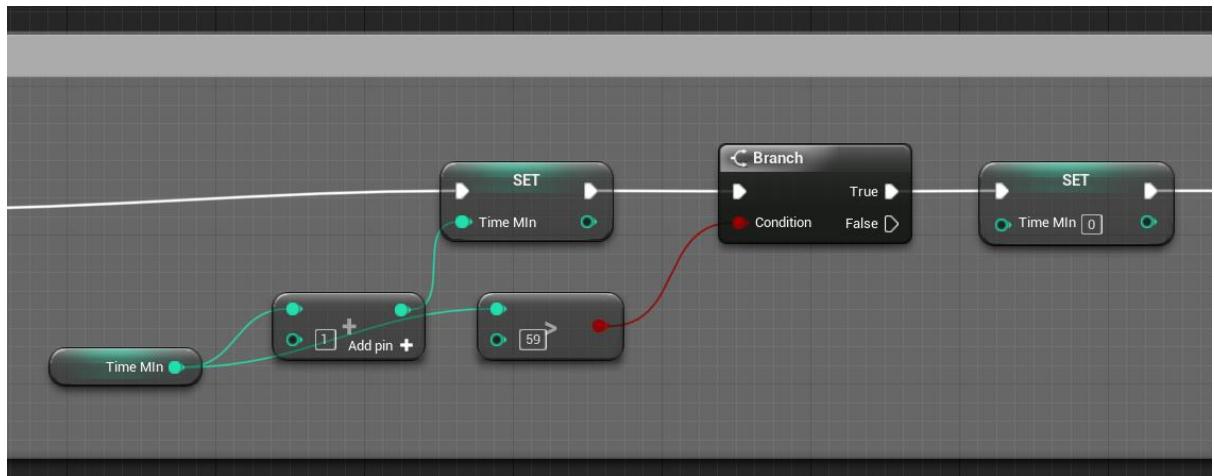


To begin this blueprint, I start with the seconds, the delay node tells the engine that it is “normal” time/ real time, so an in-game second is a real world second.

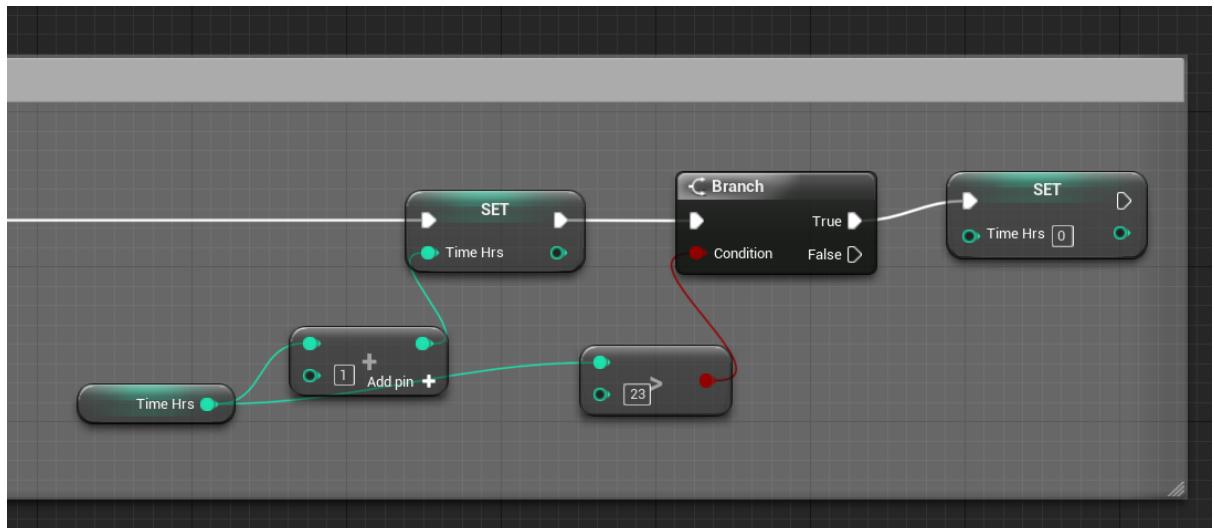
This works by getting the seconds variable, adding 1 each second, it then sets this and then once it reaches 59 seconds it resets to 0 which leads to the minutes...



The minutes then add 1 each time the seconds resets to 0, then the process repeats itself here as for each minute, add 1 and once that reaches 59 minutes it resets to 0 which leads to the hours...

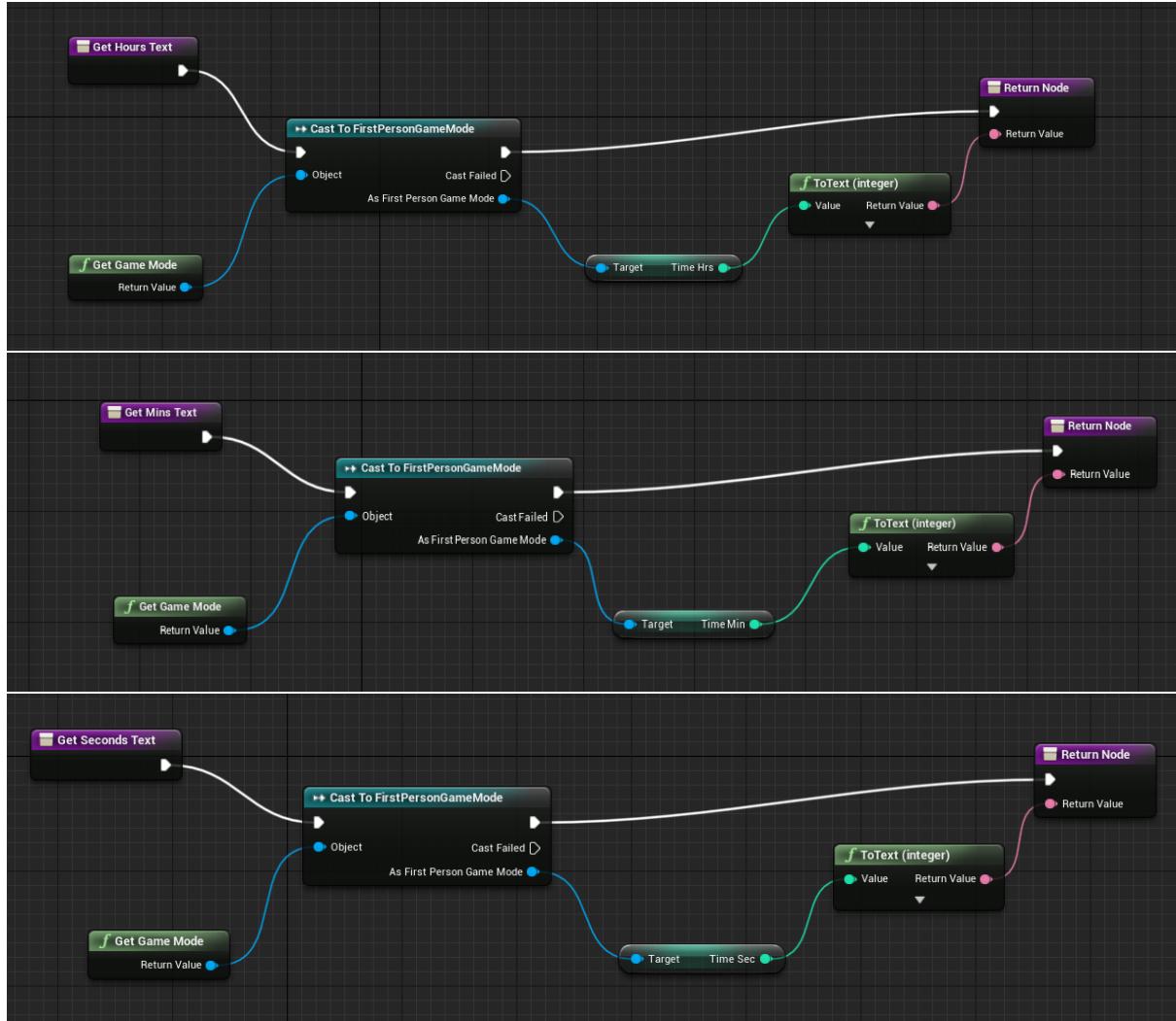


The hours also then add another hour, once a new hour is added it gets +1, I have it set to a 24-hour clock so when the hours reach 23 it resets to 0.



This blueprint was easy to do as it just repeats itself, with the different variables.

To then update these variables and display them on the UI I had to bind them to the text components:



They all work the same, so I do not need to explain them separately.

In these functions it casts to the first-person game mode as that is where the blueprinting takes places, it gets the game mode function and looks for a target that target being one of the three variables I created for seconds, minutes and hours. It then converts these to text and adds them to the UI Widget.

Creating this widget consisted of watching 3 different videos:

[https://youtu.be/UR4I\\_tsYcqs](https://youtu.be/UR4I_tsYcqs)

[https://youtu.be/rBS\\_K3XF3iU](https://youtu.be/rBS_K3XF3iU)

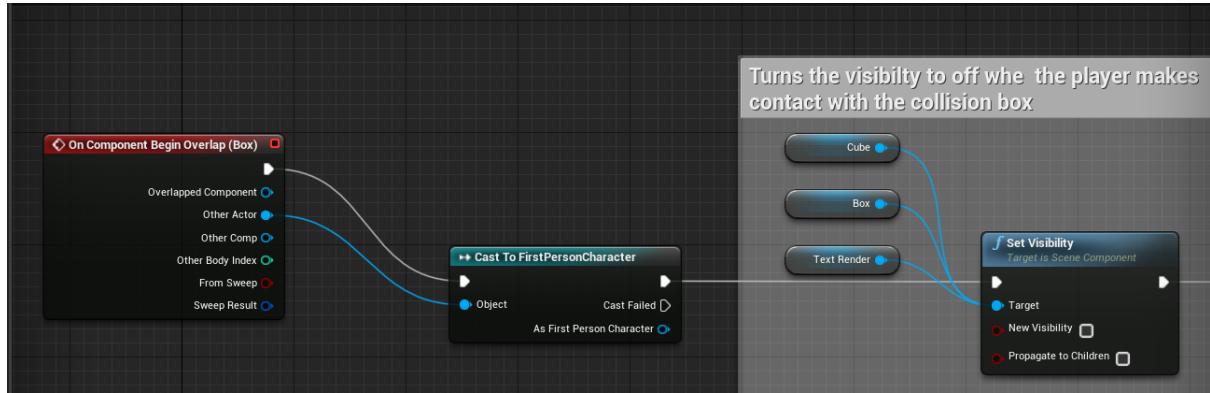
[https://youtu.be/UR4I\\_tsYcqs](https://youtu.be/UR4I_tsYcqs)

I combined them into 1 to get my timer to work the way I wanted as each video did a few things differently.

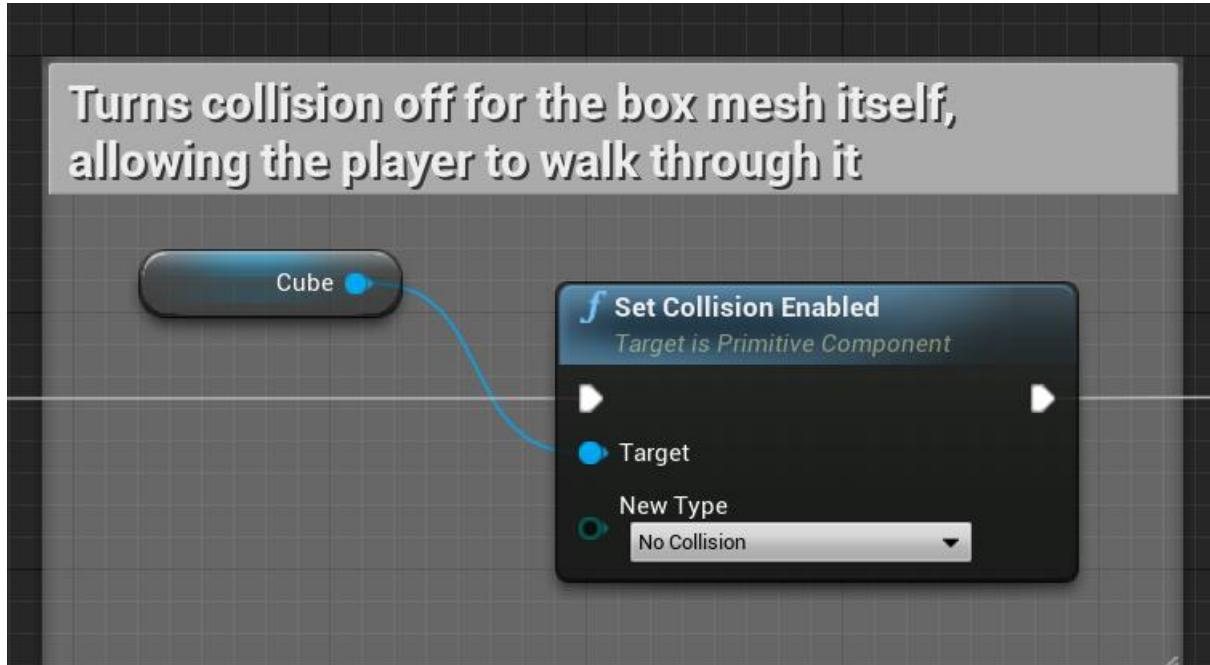
The downside to how I did this timer is that it is in the game mode blueprint, which in return prints the widget on all scenes including my main menu and end menu, while it is not a big deal, I do not know how to incorporate it into the level blueprint or the player blueprint as I tried these but did not get a working result.

### Collectable Blueprint:

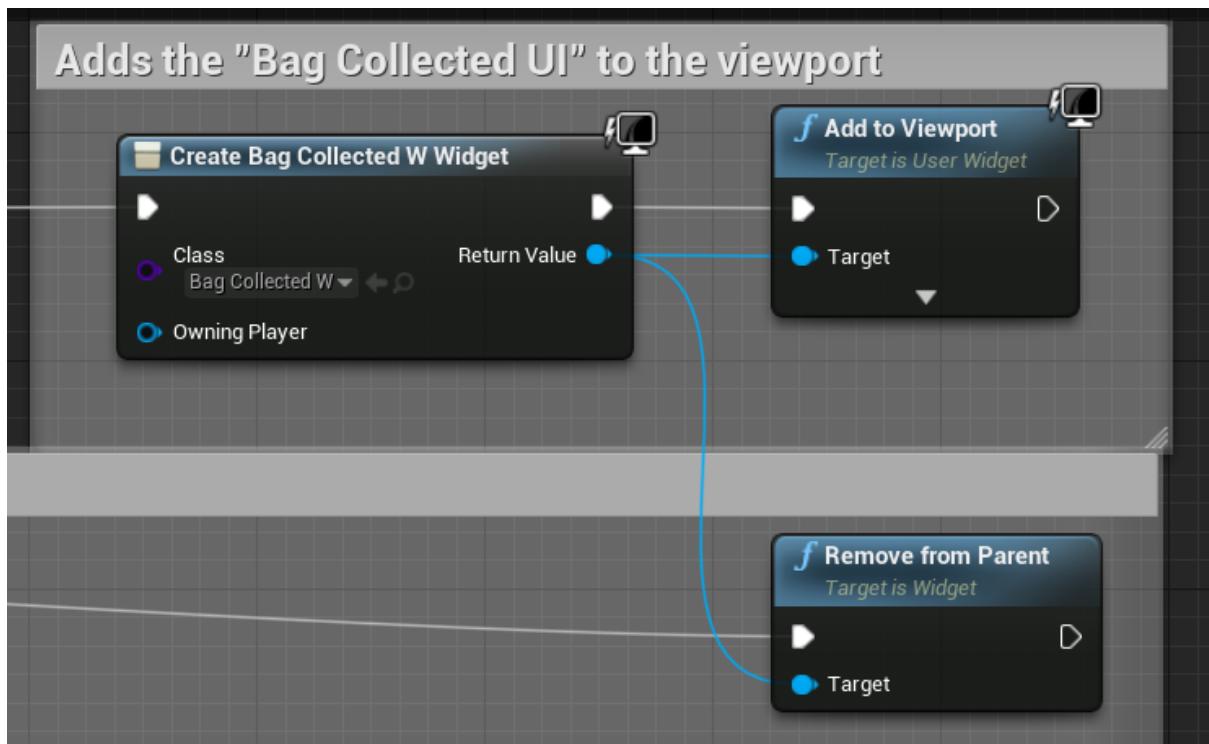
It starts off by seeing if the player has collided with the box collision, if so, it turns the visibility of the all the objects to off:



It then turns off the collision for the cube itself so the player can pass through it:



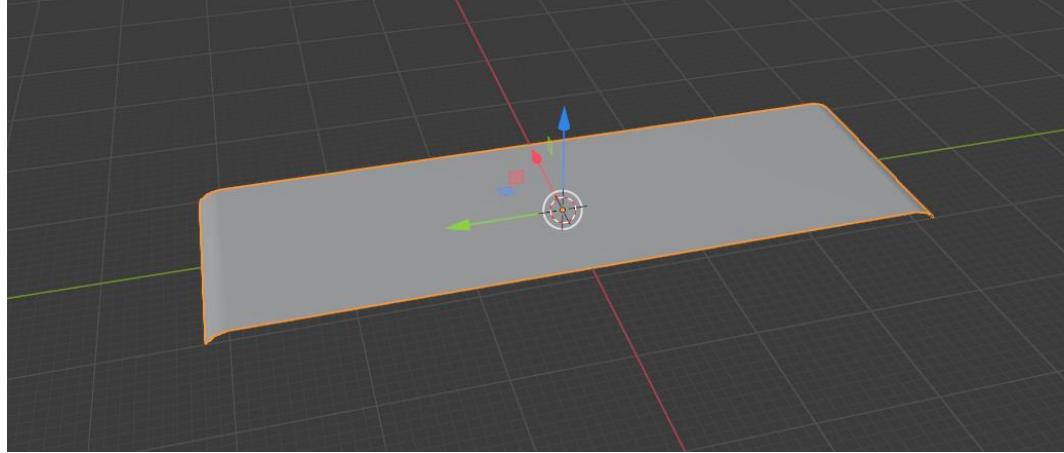
It then collects the UI I created to display “Bag Collected” when they enter the collision and then remove the UI when I leave the collision box.



## Materials

Road Material:

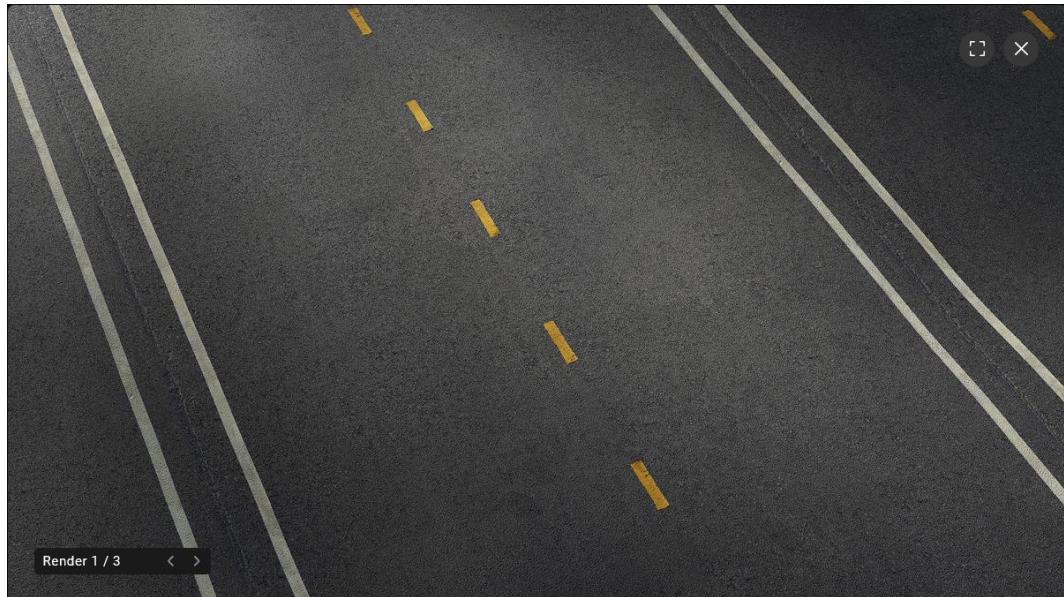
I created a simple road-like mesh in Blender (2.90):



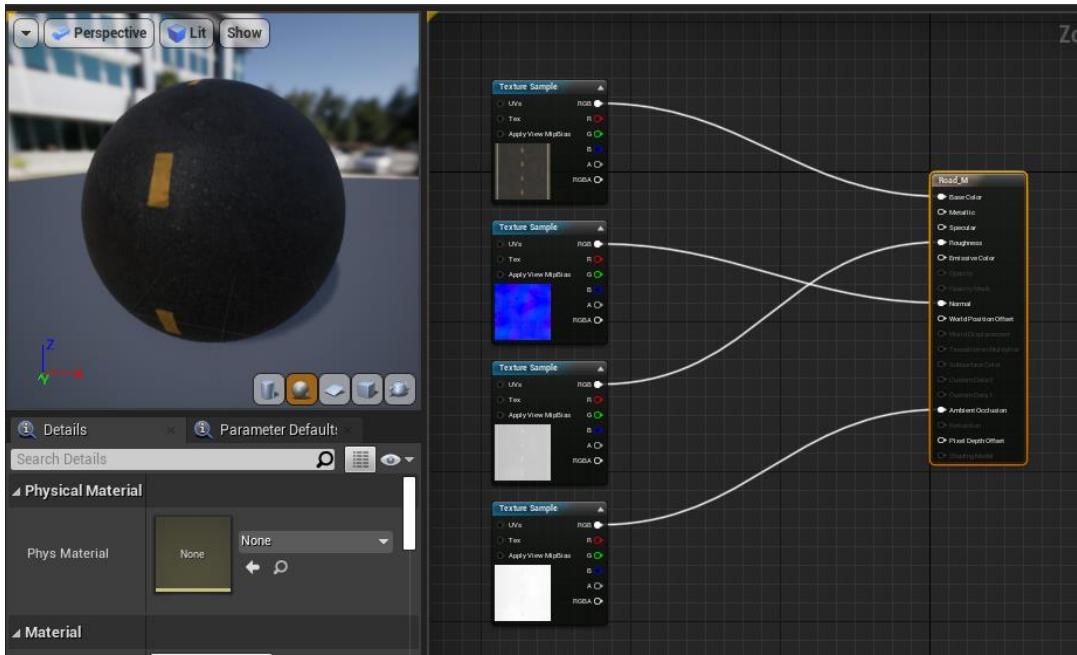
I then browsed quixel megascans for a road texture, I found an american style road (unfortunately there was no UK styled roads) I downloaded the 2K resolution files as I didn't see the unnecessary point of increasing it to 8K.

Chosen Material:

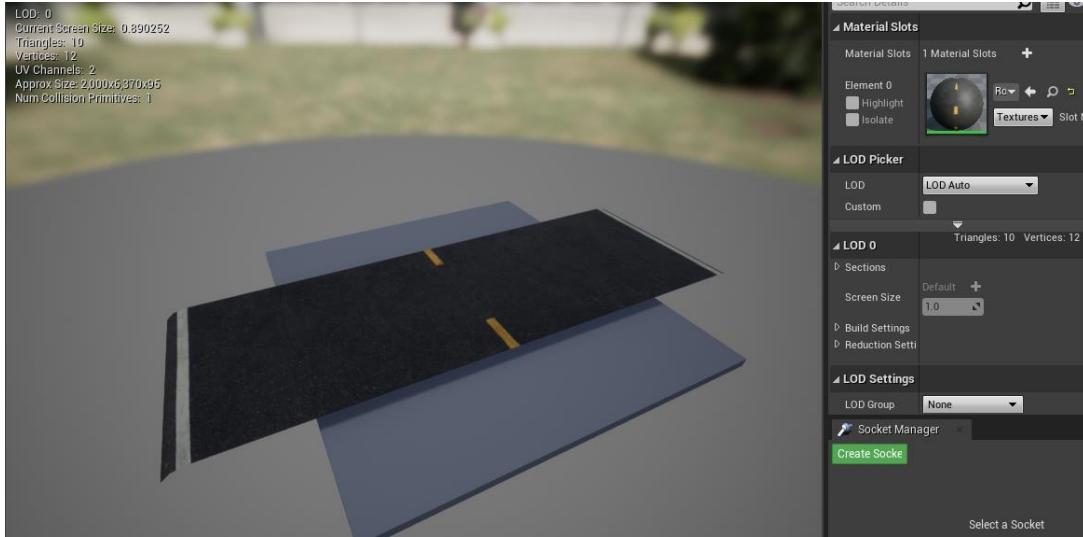
<https://quixel.com/megascans/home?category=surface&search=road&assetId=sjfnbeaa>



I then hooked up the imported jpeg layers for the material, created my own and assigned them as show below:

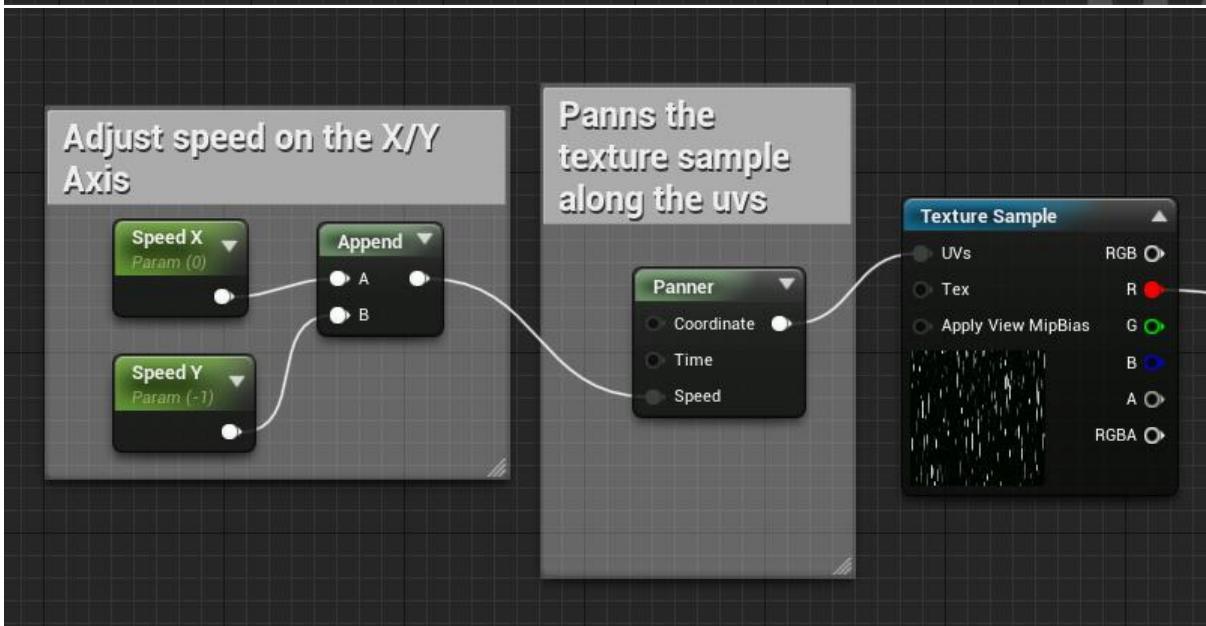
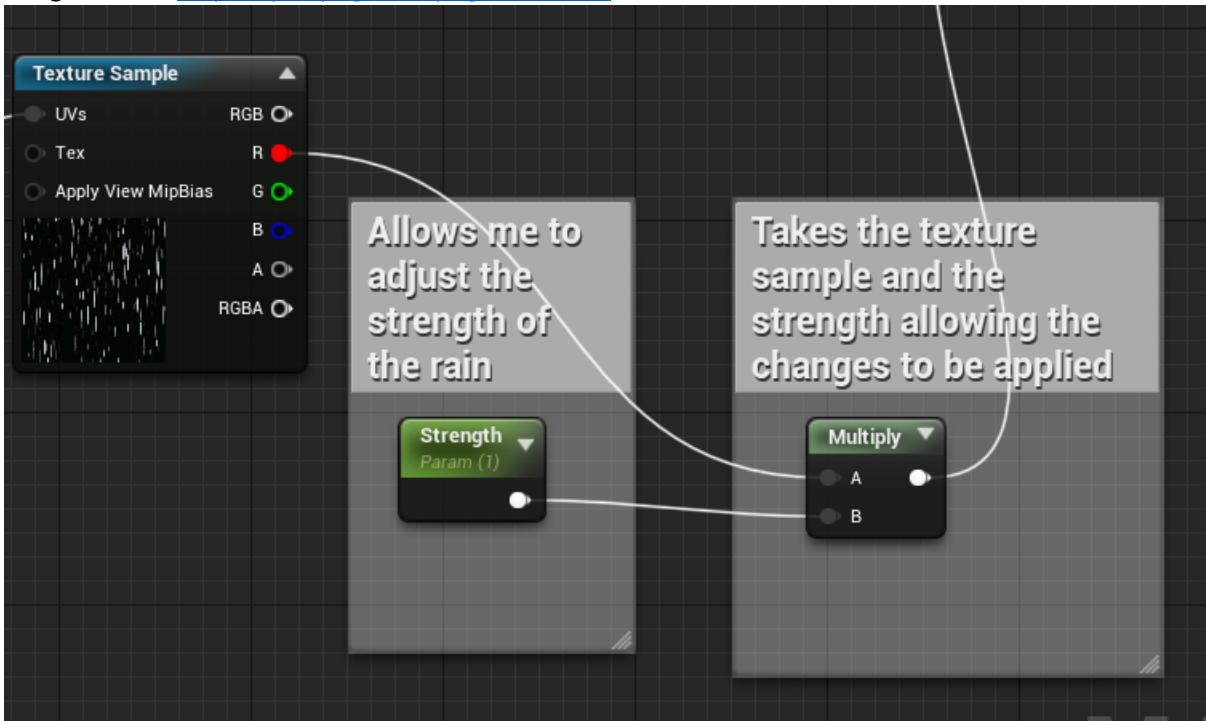


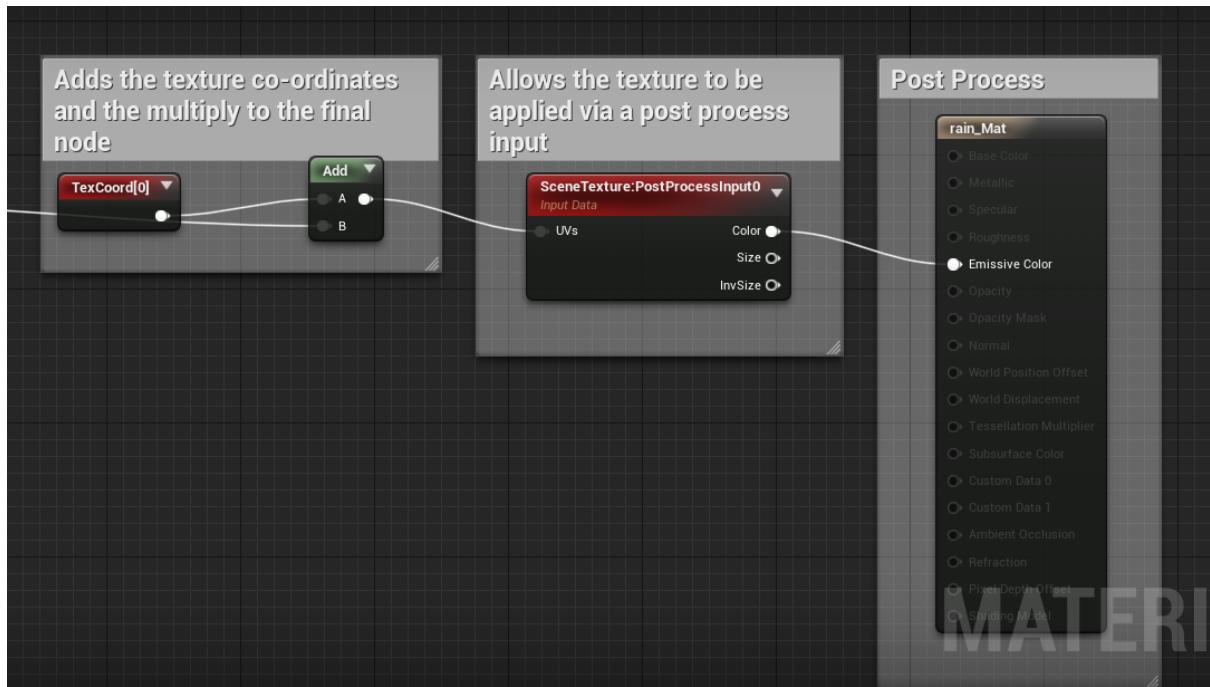
I then applied this material to my mesh:



Rain Material:

Image source: <https://pluspng.com/png-7235.html>

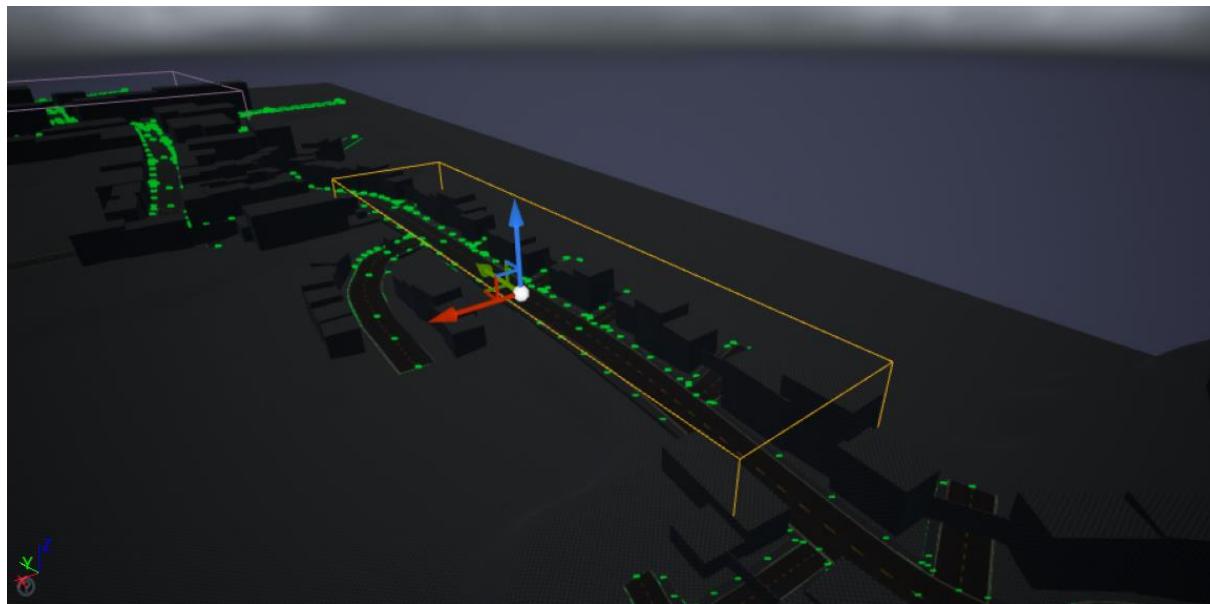




I Followed the material creation section in this video: <https://youtu.be/NLXVGwXw9QQ>

I hadn't at the time worked with the post process yet so this was a helpful tutorial to show me how to create a rain shader, I then added in a post process to my level and assigned the material instance to it and tweaked it till I liked it.

I set my post-process box up along the straight road:

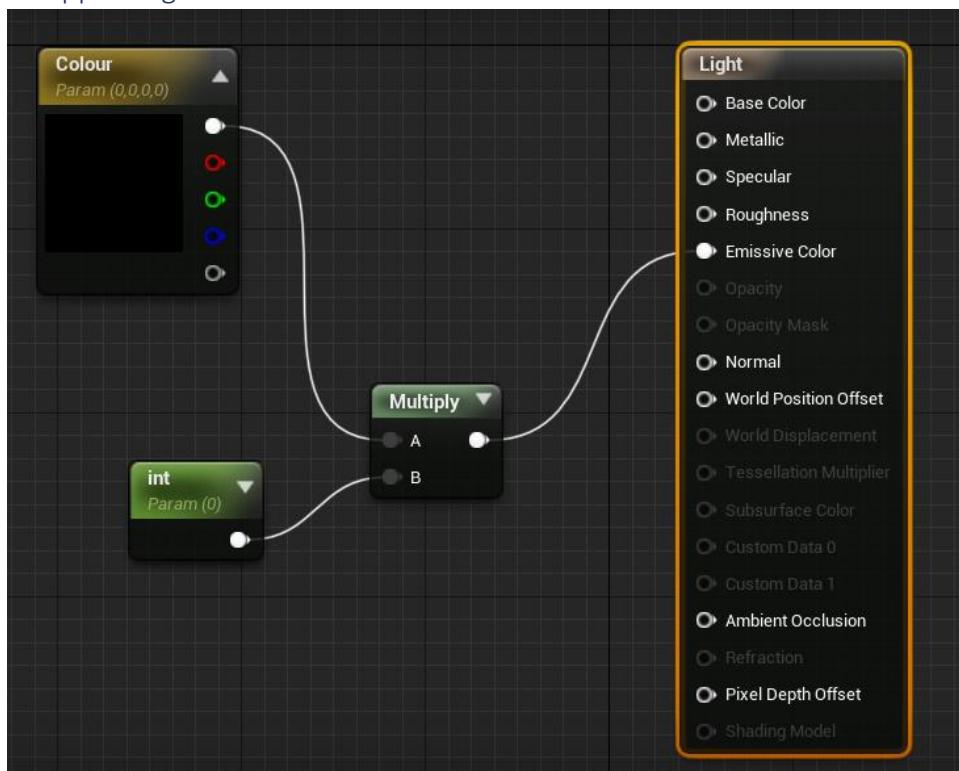


A still image of the rain:

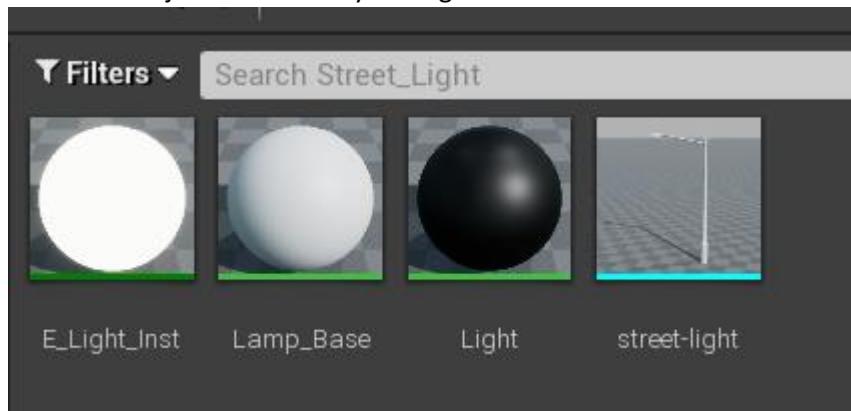


(A better viewing can be found in the play-through video)

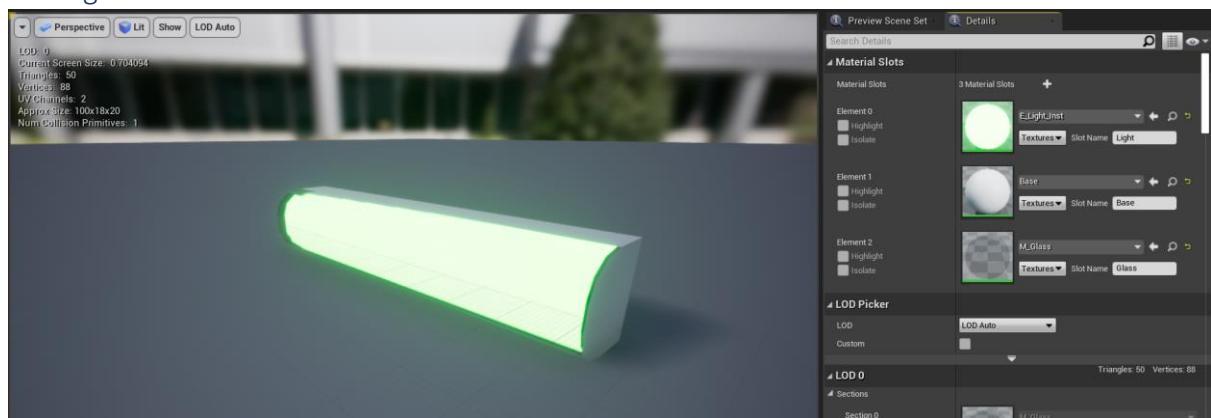
Lamppost Light Material:



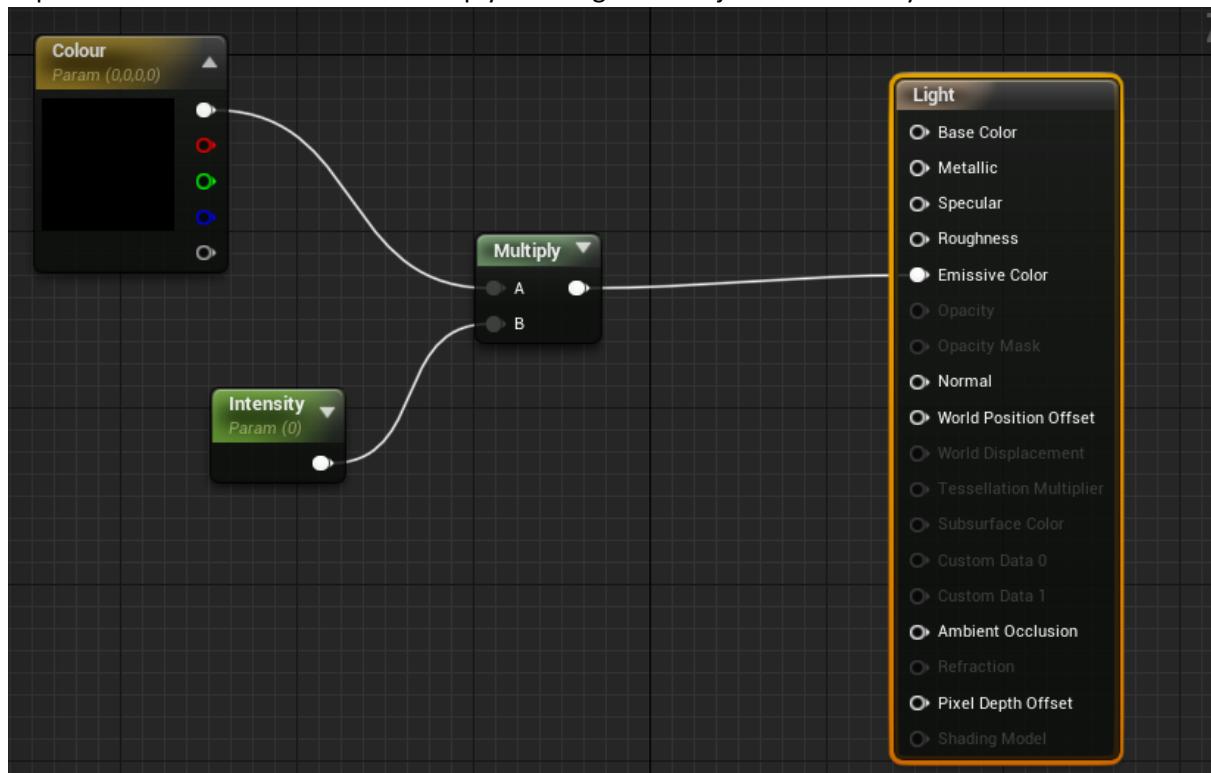
I created a quick emissive shader for the light, it uses a 3vector with exposed paramters, as well as a 1vector to adjust the intensity through a material instance.



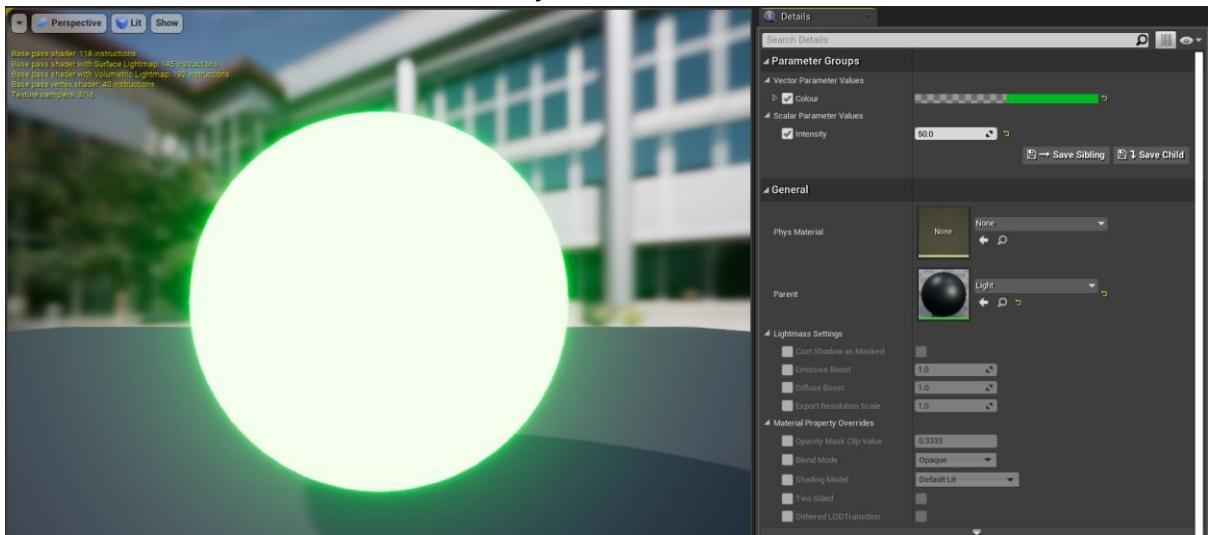
Exit Sign Material:



For the emission shader, I created a very simple shader, it consists of a 3vector with it's parameters exposed which is connected to a multiply allowing me to adjust the intensity:



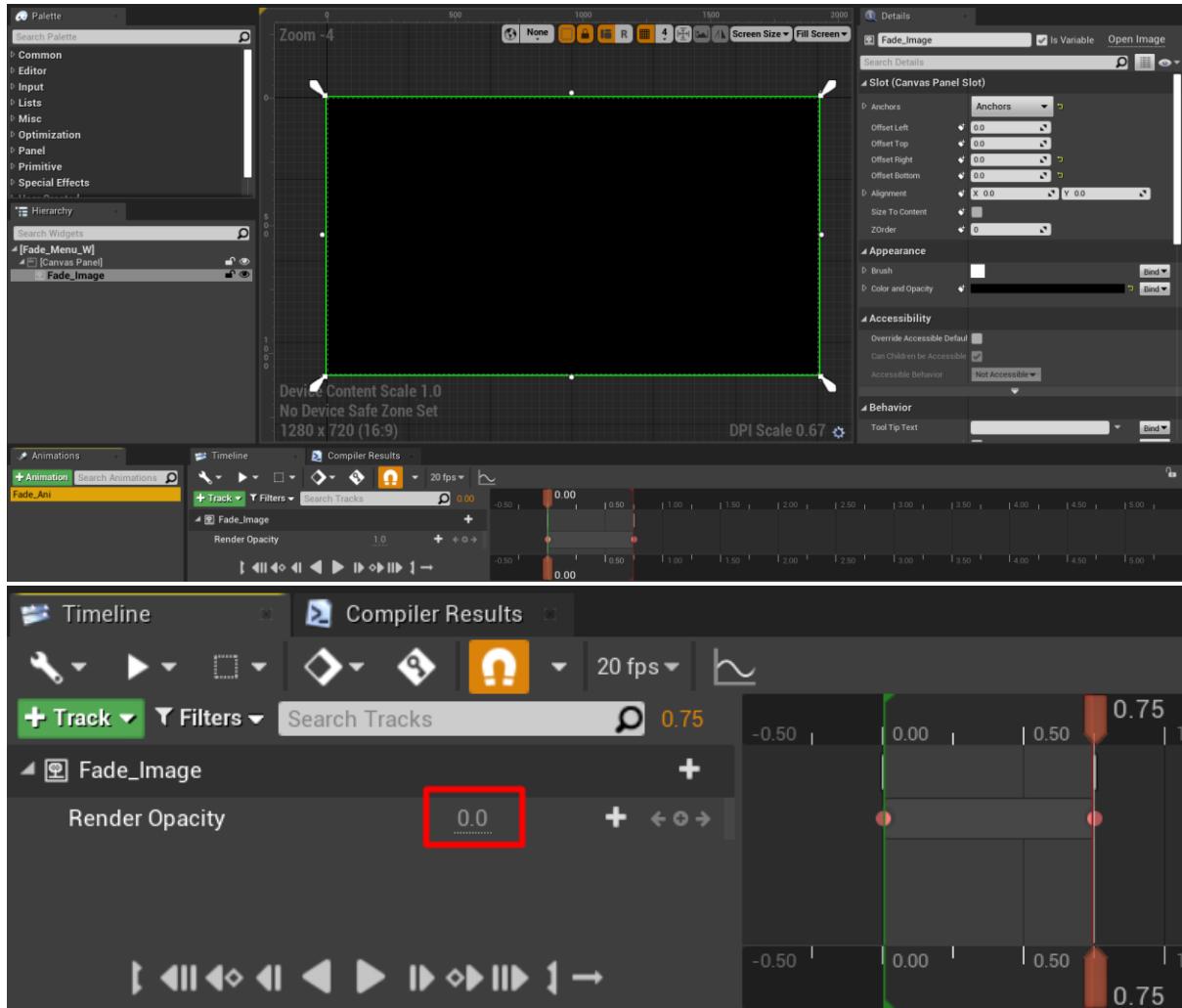
I then created a material instance so I can adjust as needed:



## Animations

### Fade In/out Animation:

To create the fade animation it was again simple, I added a image and made it black, I then anchored it to the edges and scaled it to fit, I animated this using the timeline, it was a simple as turn the opacity from 1 to 0 over 0.75 seconds.

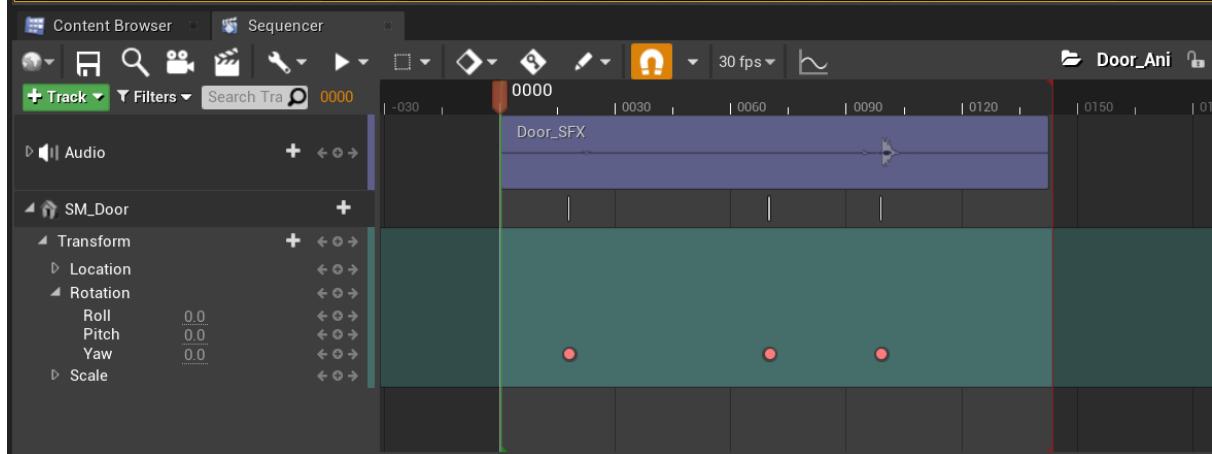


## Door Animation:

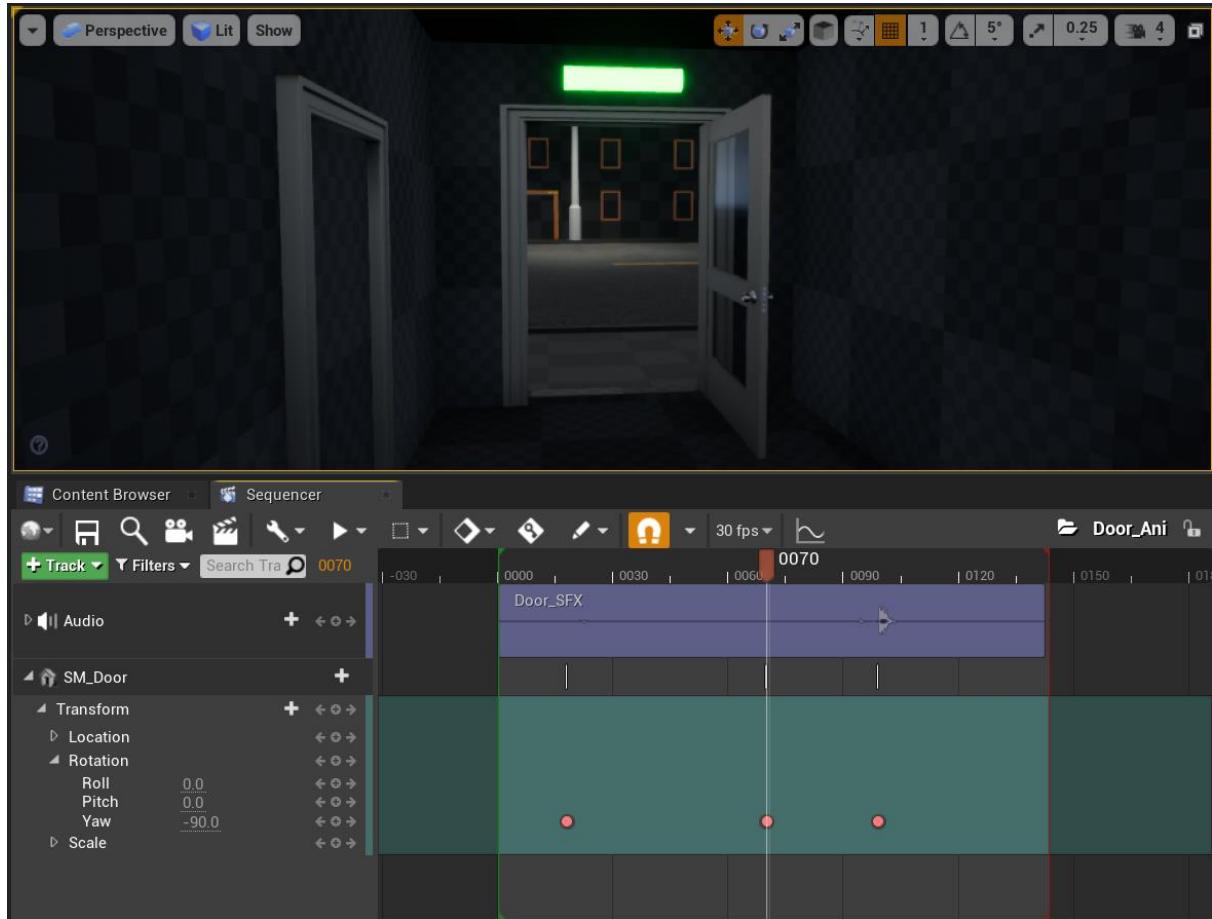
I followed this tutorial for animating the door: <https://youtu.be/-aApmzxl874>

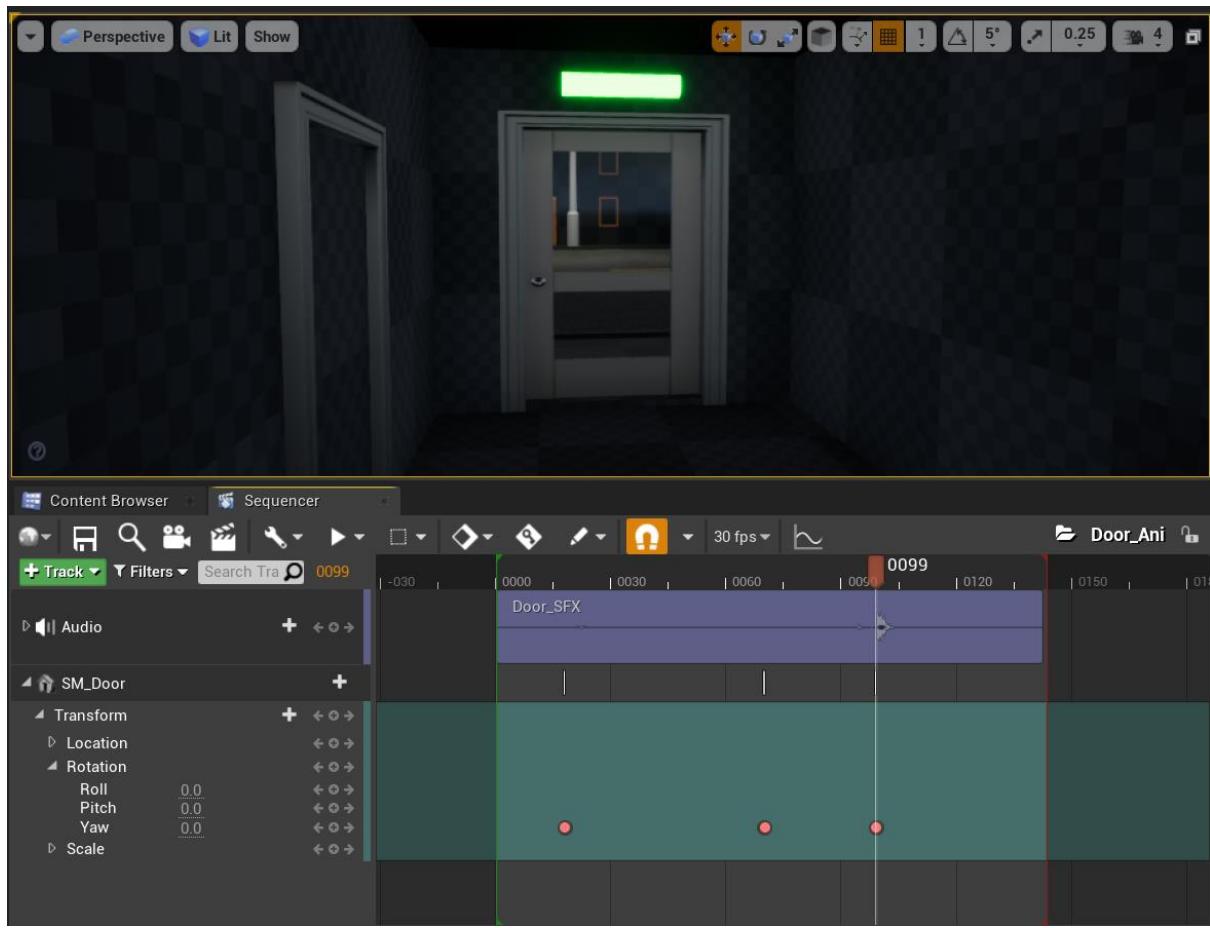
Audio Source: <https://freesound.org/people/JakLocke/sounds/261109/>

I added audio to my door open/close, so I wanted to sync it with the audio, which is why the door does not start to immediately open as it matches the sound sfx.



At frame 70 it is opened a -90 degrees as the door opens inwards to it has to be adjusted on the yaw to -90.



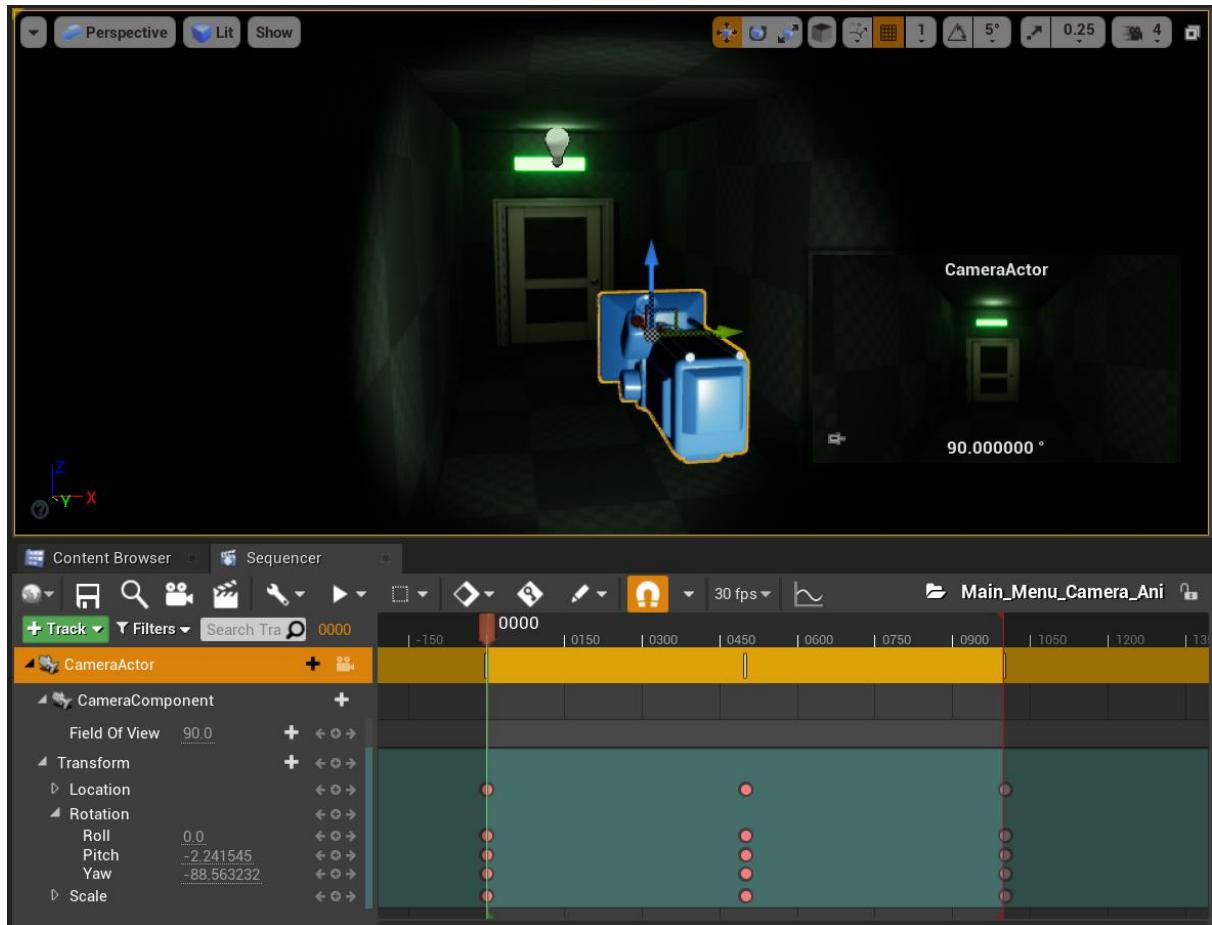


It then closes back at frame 99, this it to match the audio used.

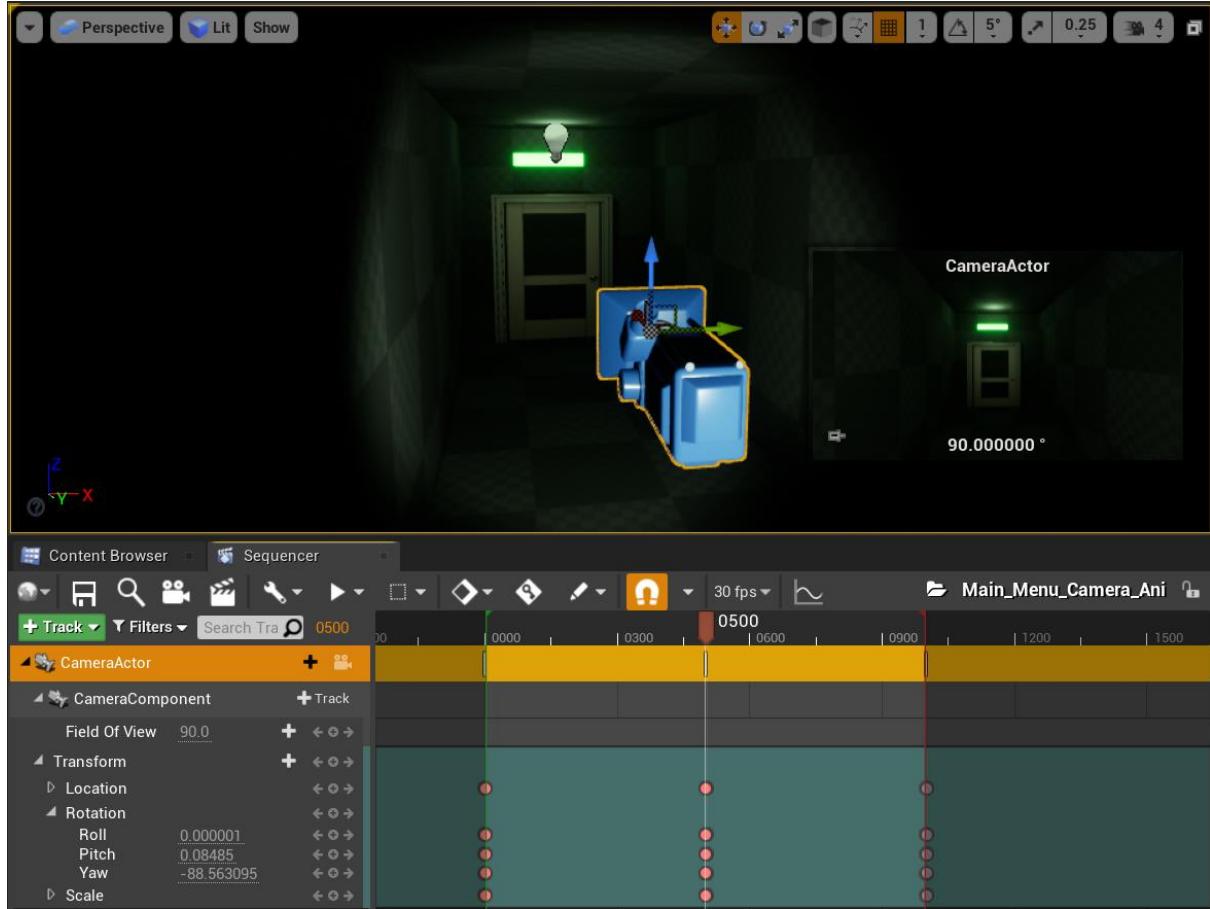
Sound Source: <https://freesound.org/people/JakLocke/sounds/261109/>

## Camera Animation:

For the camera animation I created a 1000 framed sequence, I wanted it to be slow and subtle that is why I had it over 1000 frames.



It is a very simple animation; it just adjusts the pitch up then back down to the start position:



And then I copied the frame 0 frames and pasted them on the 1000<sup>th</sup> frame so it loops back around.

## Feedback | Iterations

### Feedback

I sent my early screenshots of my road spline into the class discord, I was able to get some feedback, the two main pieces I got were about trying to create some intersection mechanism, whilst this is a cool idea, I do not believe it is necessary or doable with my current knowledge, it may be something I can look to in the future if I have time to do it.

The second piece of feedback I received was on the road texture, I was told it looked very plain, which I do agree to, they suggested adding small details like manholes or road damages, I believe it is something I could add, however it is also not that big of an issue as the basic road is enough to convey a road. It will be something I look into towards the end given time.

Nearing the end of the blockout I sent a few images to friends some are in this module and the majority of them said I should add walls to the ends of the roads that are not accessible, I will do this although it might not look great, my intention is for future development if I do continue to give it a deep fog material which does not let the player pass/ see through it.

### Iterations

#### Pathway Iteration:

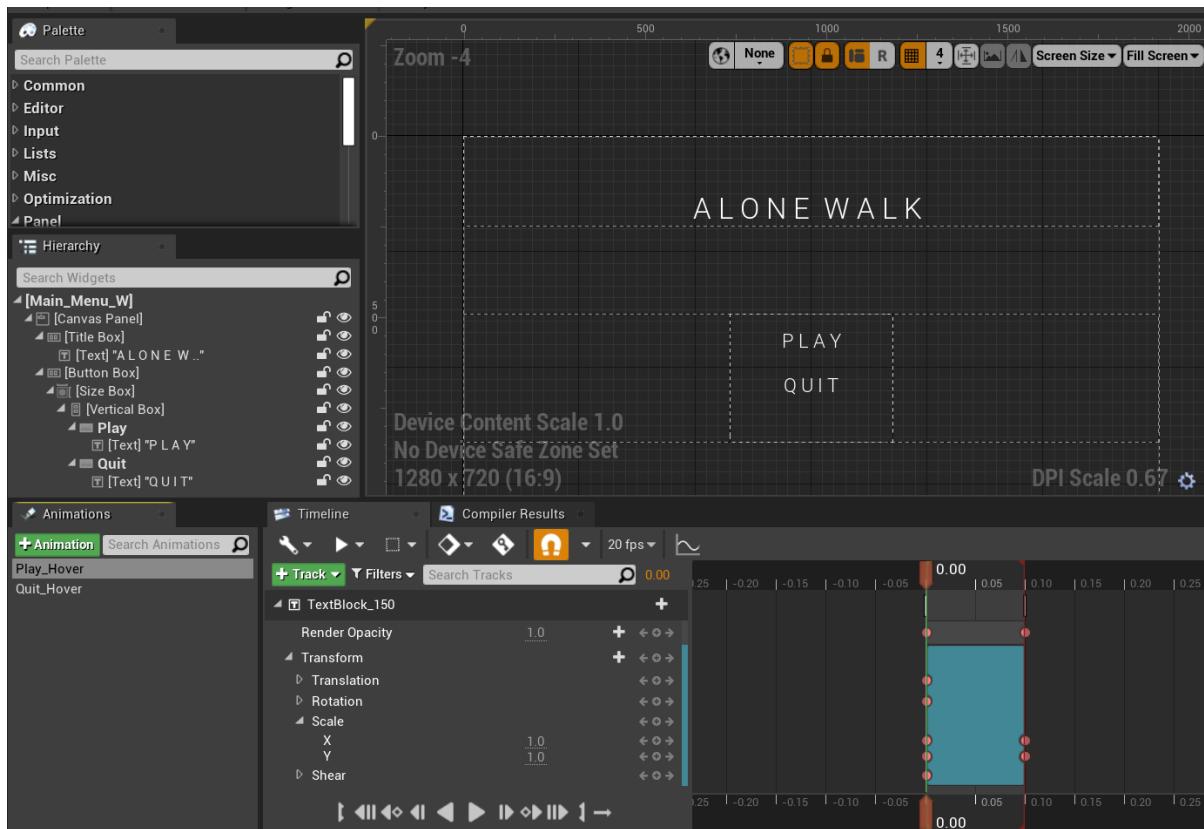
After getting a hang of the spline tool, I decided to make another mesh in Blender and import it, I set up another spline for pathing to replace my old method of using the blockout tool plugin, I like this result a lot more and it is easier to use with the control points that I can place to easily adjust the path to be how I want.

From here I will continue to use the spline tool to create my paths and replace the blockout tools later on.



## Main Menu Iteration:

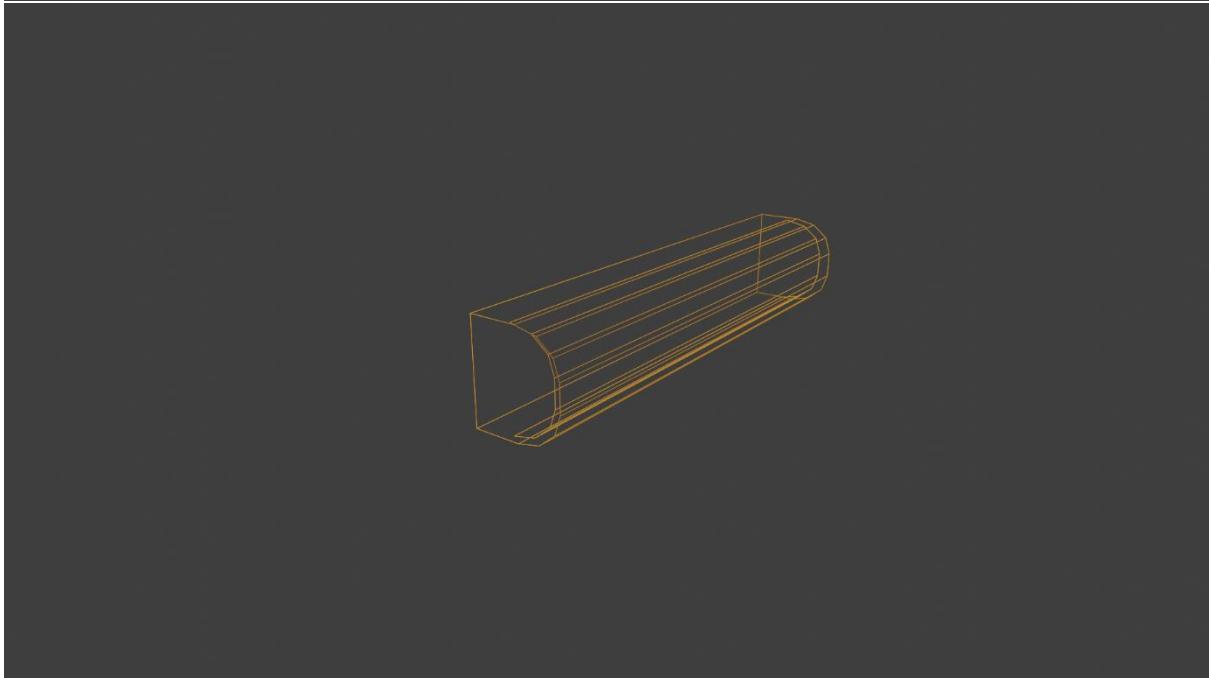
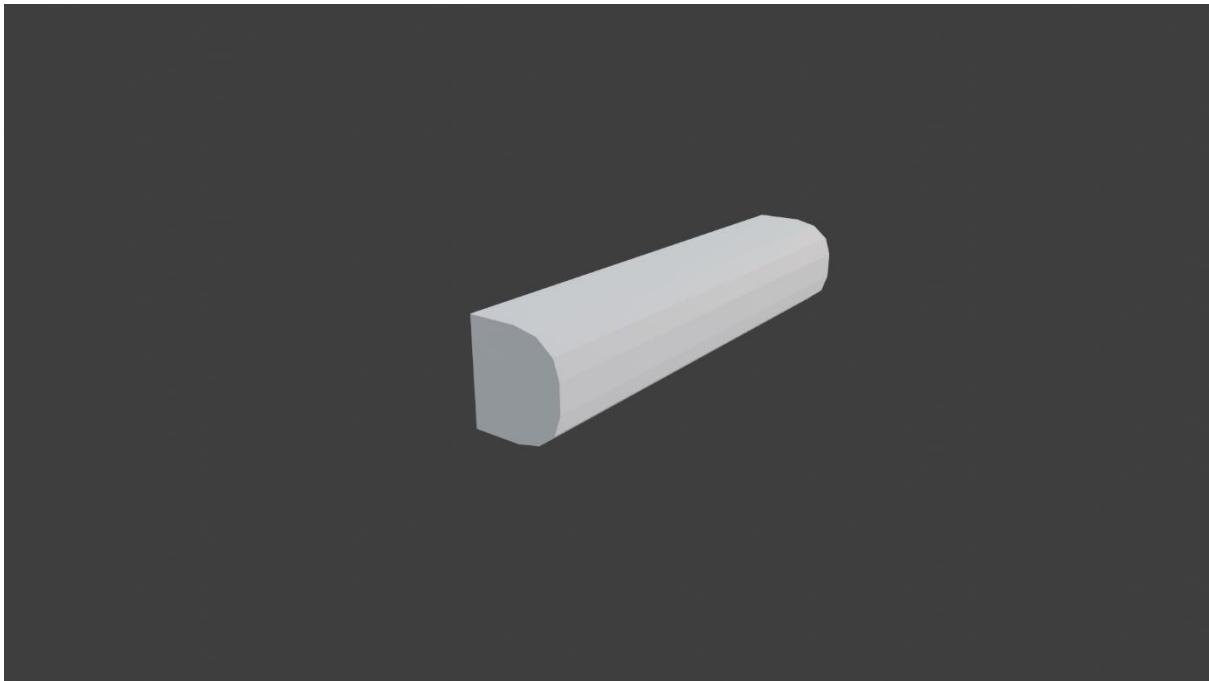
After completing my blockout I went back and re-built my main menu, I did not like how it looked, it was too simple, I followed a tutorial on creating a “live” menu, which just adds some camera animation and a fade in/out animation when switching scenes.



The above screenshot shows the UI widget designer, I kept the same look, I turned the alpha channel of the button to 0 to make it look cleaner, I changed the font styling from “bold” to “light”, I already like how better it looks. I also created an animation for the hover/unhover effect to give the player some feedback letting them know it is selected.

The animations are very simple, it changed the opacity from 1.0 to 0.5 and the scale from 1.0 to 1.2. (This is viewable in the play-through video.)

I created a new level for the menu, I added in the starter-content door and door frame, I created a new mesh to represent an exit sign inside of bender:



A preview from inside the engine of the redesigned menu:



The tutorial I followed along to help create this menu was this:

<https://www.youtube.com/watch?v=sJNDy--OJK0>

One thing I can say is that animating is pretty simple using the timeline, it is pretty simple to how it was in Unity and Blender so I was able to do this part easily as the knowledge is transferable between the different programs for simple animations like these.

## Evaluation

Now that I am finished, I can say it was a new learning experience for sure, I had absolutely no knowledge of Unreal Engine or Blueprinting prior to going into this, it was very daunting at the start, I found the engine to be very resource intensive at times not allowing me to do anything else on my pc, I did however like the UI, it is very easy to navigate once you get the hang of it, plus the built in tutorials are handy as well.

As for my project, I am content with what I have done, although I wanted to do more due to restrictions and personal hinderances I was not able to get there in the end, I still believe if I wanted to continue development and get it to the state, I want it to I could given the time, I will say Unreal Engine has a very good lighting system, the results it produces are great.

When it came to designing my level, it did not take much since my level is based on a real location, so I was able to reference the map and use that as my layout, I did go off the real-world building's sizes, as I did not do an exact copy of each building throughout the level, I did however try to make it resemble certain locations such as the University and Library.

A good reading, I did "Kremers, R., 2009. *Level Design*. Natick, Mass.: Natick, Mass. : A.K. Peters." was handy with audio design, something I haven't done before in the 3D aspect, it helped me understand a bit more how we hear things, it helped me to build the audio up and how ambient sounds can help play into the immersion of a game. I used this throughout the level to add diegetic sounds, sounds the player can "see" or know where they are coming from, I did this for my flickering lights, generators, and rain, they are all visible and the player knows where they are coming from.

I could however have done better with the overall immersion of the game, I tried guiding the player with the streetlights and blockout off the roads, but that breaks the immersion of having a solid block, I wanted to add some form of dialogue into the game to assist the player as they go but unfortunately never got around to it. Which I think would have made the experience much better.

A thing I need to improve upon is getting feedback, I only got small minimal feedback and had no-one test so I was not able to get the best feedback possible.

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