



# POST WAR ENVIRONMENT

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By Oliver Beeston - B015319m

# BRIEF BREAKDOWN:

Keep looking back at the reference images for the environment, Rural landscapes have lots of green vegetation and foliage, Urban environment is heavily damaged and chaotic.

Needs a clear focal point for the scene to be designed around, Compositions is a key factor that is being looked at.

Scene needs to be optimised for rendering,

3 different angles to be presented at 1920 x1080



## Submission Guidelines

- Create a 3D Diorama or Scene, using the key references as your inspiration but you don't have to strictly follow these.
- You should pick from three of the following themes to drive your scene : Urban Decay, War Torn, and Calm Serenity.
- Your submission must include at least one hero asset or environment set piece to be the focal point of your composition whether this be a church, a building on the main road or a barn in a field.
- With this being an Environment Brief as opposed to a Prop Brief, we are looking to see how you would approach a complex scene from a technical and artistic perspective and show clearly how your composition takes shape – All assets created by you must use game ready methods for asset creation.
- Your scene should be optimised and functional for real-time rendering and adhere to restraints outlined in the technical requirements.
- Use of Megascans is allowed for tertiary detailing outside of your hero asset but must be declared

# BRIEF BREAKDOWN:

Make sure I use tiling materials as well as trim sheets to meet the technical requirements.

My hero asset needs to be fully modular, this may allow me to have multiple buildings made from one modular pack.

The poly count doesn't have a limit but it needs to be suitable and I need to be able to justify why I have used that many.

Maintain a suitable texel density, make sure everything has enough detail and UV islands are packed correctly.



## Technical Requirements

- Your scene must be developed in Unreal Engine 5.
- Megascans and marketplace assets are allowed but, must be declared as part of your written submission.
- Use of Trim sheet(s) / Tiling Materials are required.
- Your Hero Asset should be fully modular and incorporate parameterised functionality in your materials.
- Implement LODs to ensure your scene is suitable for real time rendering.
- Maintain a suitable polycount for a mid-range system.
- Folder Structures within your project must be named correctly and have consistent prefixes and suffixes.
- Use of Nanite and Lumen is allowed but must adhere to the performance requirements.
- Keep consistent texel densities across your scene.
- Shader/Lighting complexities must remain optimised.



# BRIEF REFERENCE IMAGE:

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# BRIEF REFERENCE IMAGE:

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# BRIEF REFERENCE IMAGE:

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# BRIEF REFERENCE IMAGE BREAKDOWN:

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# BRIEF REFERENCE IMAGE BREAKDOWN:

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# BRIEF REFERENCE IMAGE BREAKDOWN:

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# RESEARCH:



I have started by gathering some reference images from a post battle scene set around World War 2, to match the brief set by Expression. These are a range of historic images of D-Day as I believe this would be a great scene to try and create.





# RESEARCH: CALL OF DUTY WW2



Collecting some reference images from COD WW2, the environments are very busy with a range of different assets filling the foreground. There is a great use of varying height to help lead the player around.



# RESEARCH: HELL LET LOOSE



After looking at Hell Let Loose, the materials added most of the detail to the environment and the use of the foliage is sparse so that it doesn't block the players line of sight.



# RESEARCH: HACKSAW RIDGE



Hacksaw ridge captures the chaos and destruction of a war environment with all of the foliage being burnt and destroyed, it is unclear what is going on and everything is covered in mud. The use of ambient fog adds an extra layer of detail to the scene.



# EARLY IDEAS:

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My early ideas for this project is to create a scene that is based on the outskirts of a beach leading into the countryside that is still recovering from a battle, a scene similar to the D-Day landing where I could have a main focal point of a German bunker, and the trenches and defensive positions set up around this. This scene would be set a week after the landing.

Taking some inspiration from the reference images I would try and capture the brutality and chaos caused to the landscape after an invasion and balance this with the peacefulness of the countryside after the fighting has moved on.

I am planning to lead the player winding up the hill with the target goal of reaching the bunker.



# POTENTIAL PROBLEMS:

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I will have to make sure all of my assets created share the same art style and work together nicely in a scene.

There needs to be a clear focal point and pathway for the player to follow, as this will be a quite a confusing scene this will need to be done primarily with the composition of the assets.

## NEXT STEPS:

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My next step is to blockout my scene so I can work out the composition of different assets and I can work out what path the player can take whilst still having my focal point as the center of attention. I am planning on doing this in 3Ds Max with basic forms before moving it into Unreal.

Past this I am going to have to think about different tiling materials as theses are required to fulfil the brief. I am planning on creating these in Substance Designer and adding some extra detail in Sampler.

# FEEDBACK:

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After presenting my Week 2 presentation I received some very useful feedback, the research I have completed is sufficient and it was clear what environment I am trying to build, however I need to be careful with the scope, I mentioned a village in the background, and I was recommended to make this very low poly.

I also need to get a start with my environment, Terragen has been recommended as I can get some height map data from France and have a realistic landscape. I need to make sure that there is clear pathway for the player to follow.

In also can experiment with my pillboxes to connect some of them together with some walls and other structures so that I can use tiling textures throughout.

Try and make the presentation a little longer as it was only just over 3 mins, use the full 5mins.

Once the environment is in, I can start with the blockout and work on composition.

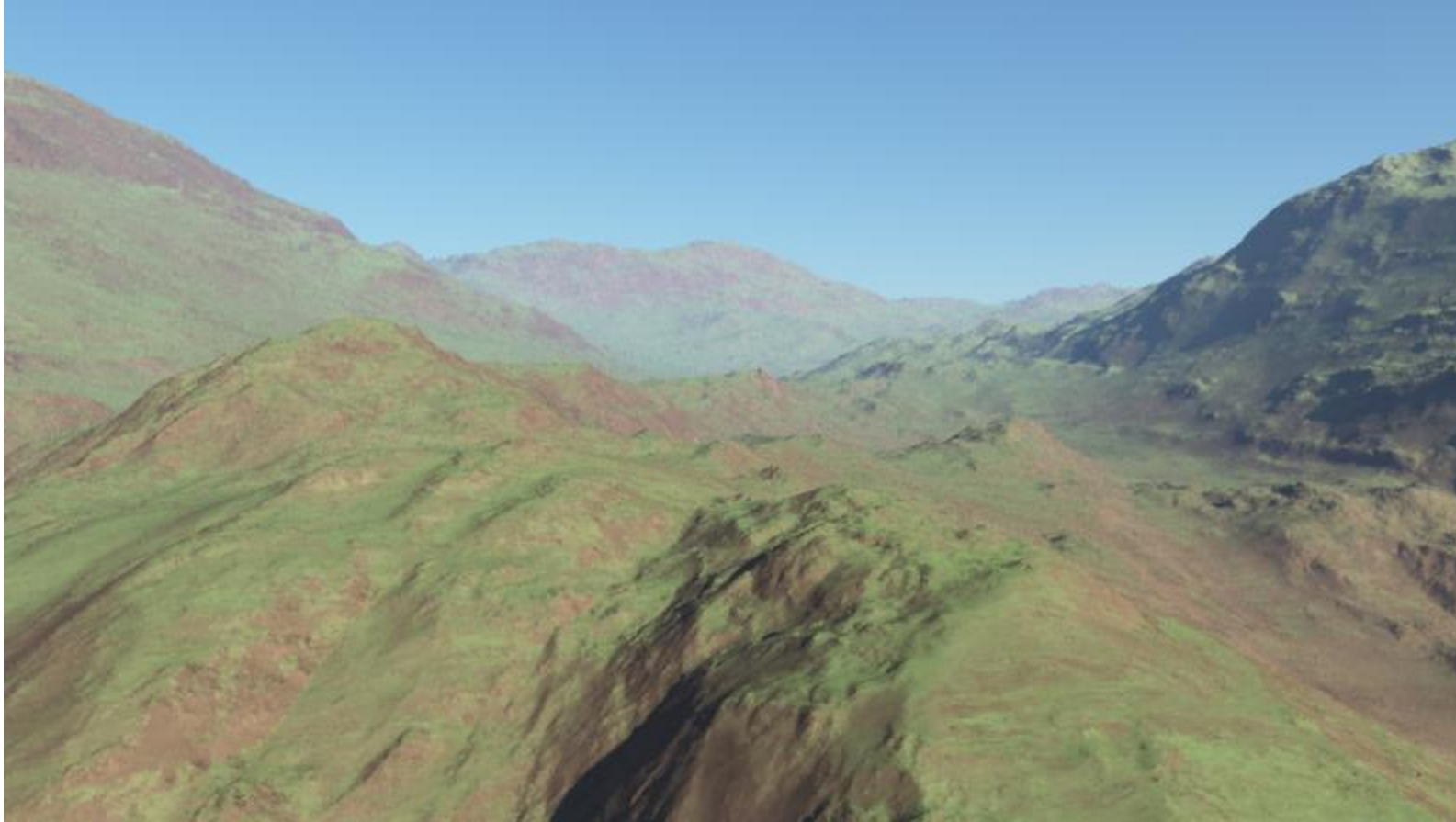


# TERRAGEN 4 EXPERIMENT:

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<https://heightmap.skydark.pl/>

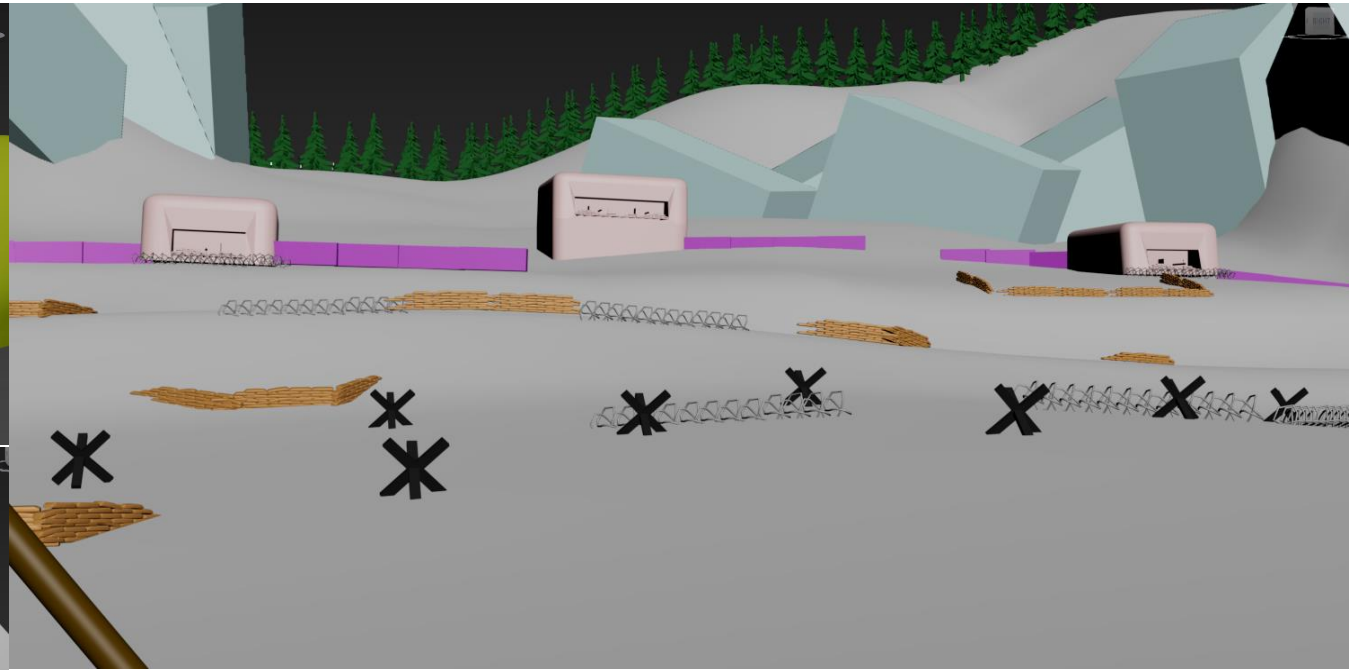
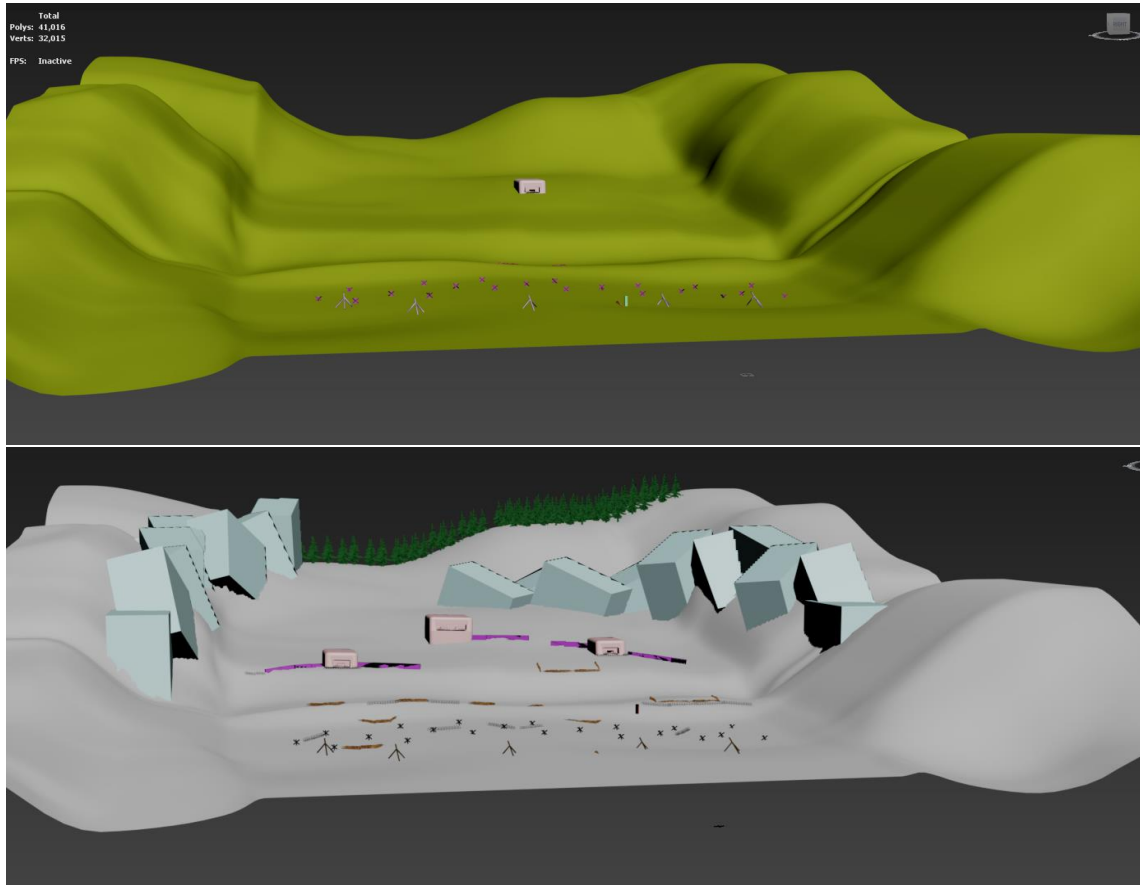
I have started to try and create my environment; I am experimenting with a software I am new to called Terragen 4, so far it is good fun but a little confusing, I have managed to create the environment seen in the image below however I am struggling to export the height map.



<https://manticorp.github.io/unrealheightmap/#latitude/50.80430747982115/longitude/1.646575927734375/zoom/13/outputzoom/13/width/505/height/505>

# BLOCKOUT PROGRESS:

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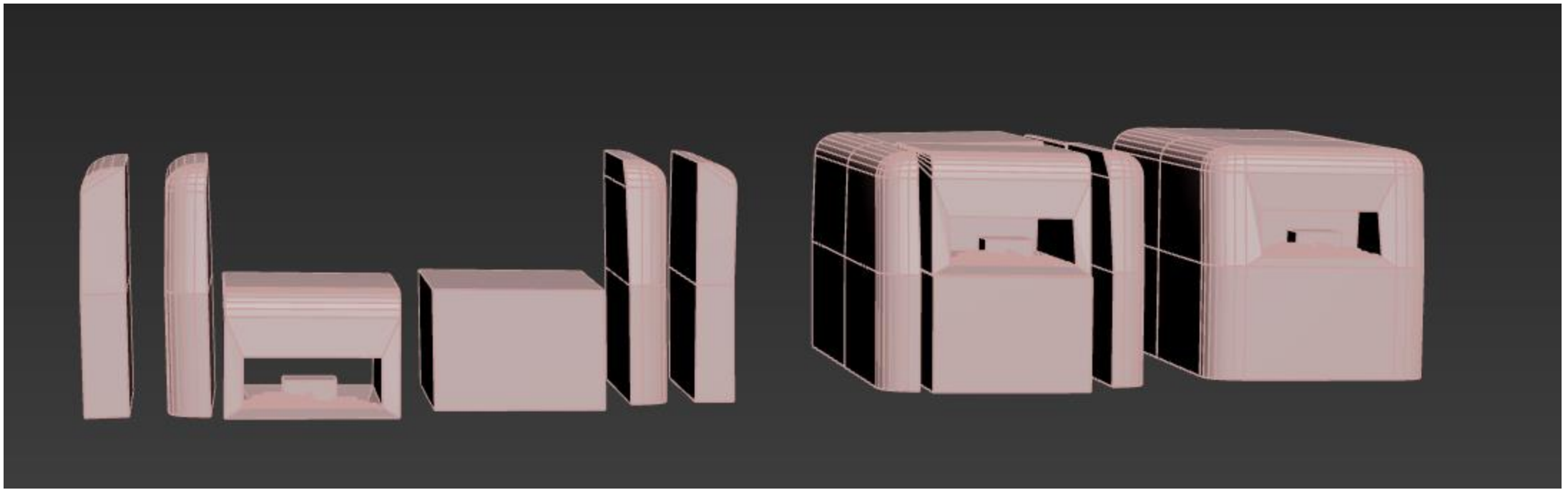


I have started to blockout my scene, working on placing the focal point in a good area, and how I am going to lead the player up the beach. I have created some quick sandbags and barbed wire to cut of some of the players pathways and used the pink blocks to represent some concrete walls that will be connected to some of the bunkers.

# MODULAR BUNKER PROGRESS:

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Begining to split my bunker up into modular pieces, so that I can make some adjustments to individual pieces. And have a place holder to put into my blockout landscape.

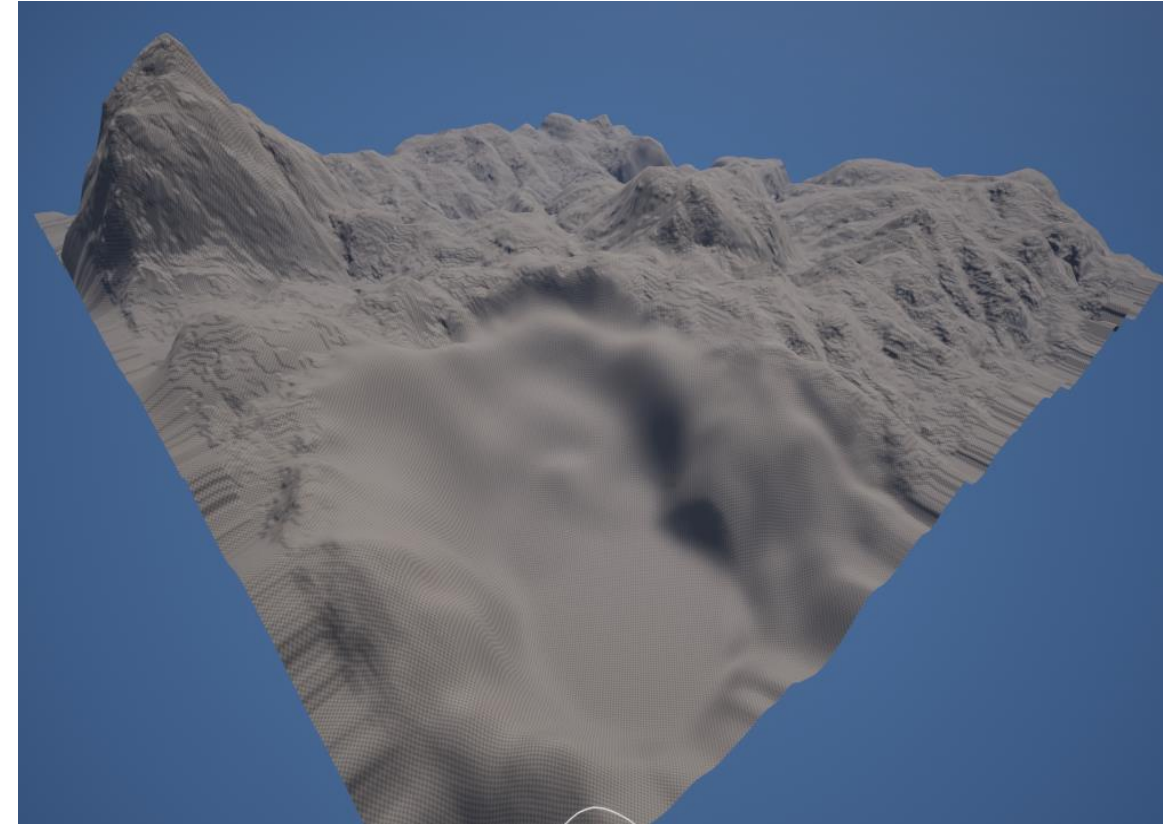
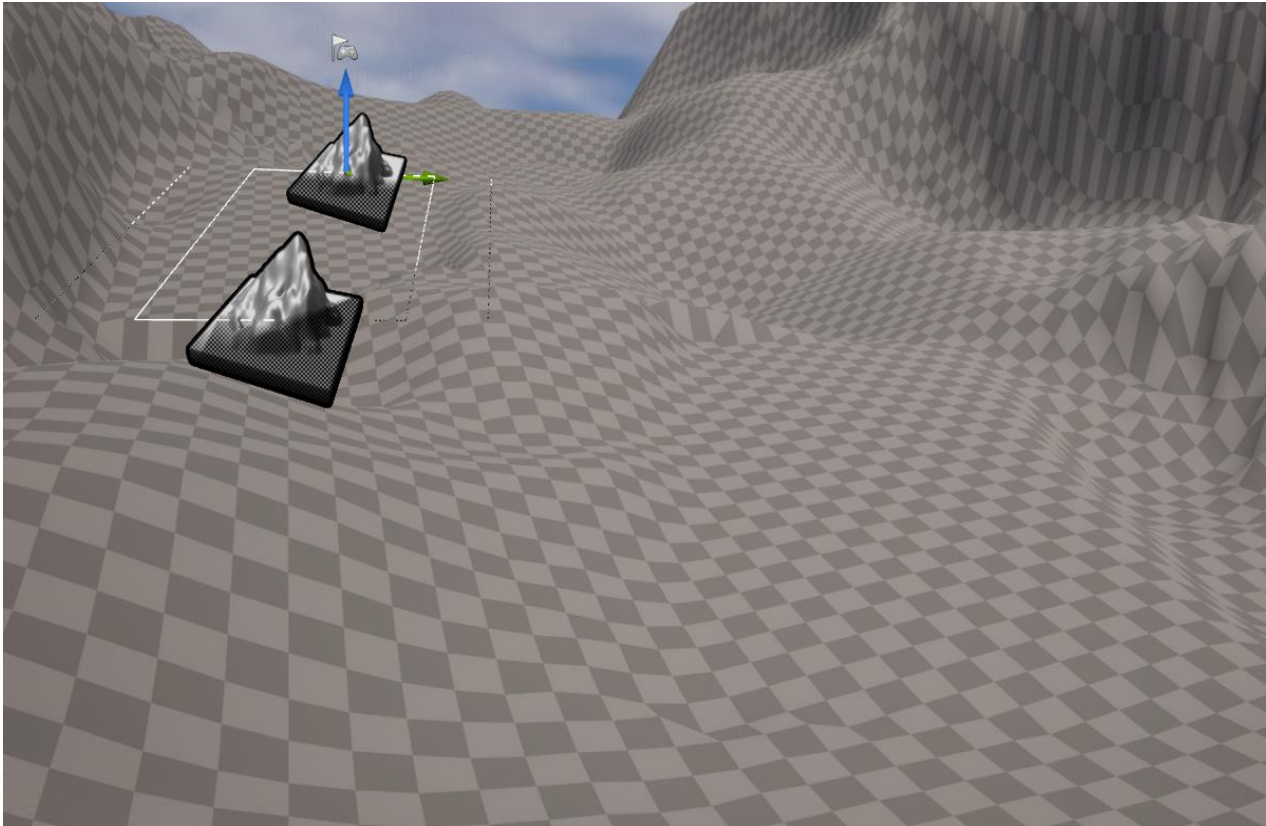




# ENVIRONMENT PROGRESS:

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After experimenting with my environment, I ended up finding the website, Manticorp.github.io, this website allowed me to extract a height map based of real-world landscape. I went to the French coastline and extracted the map, importing it into unreal.



Using the landscape tools I have sculpted in the beach leading up the hill.

<https://manticorp.github.io/unrealheightmap/index.html#latitude/50.696022691388066/longitude/1.7845916748046875/zoom/12/outputzoom/13/width/505/height/505>

# ENVIRONMENT PROGRESS:

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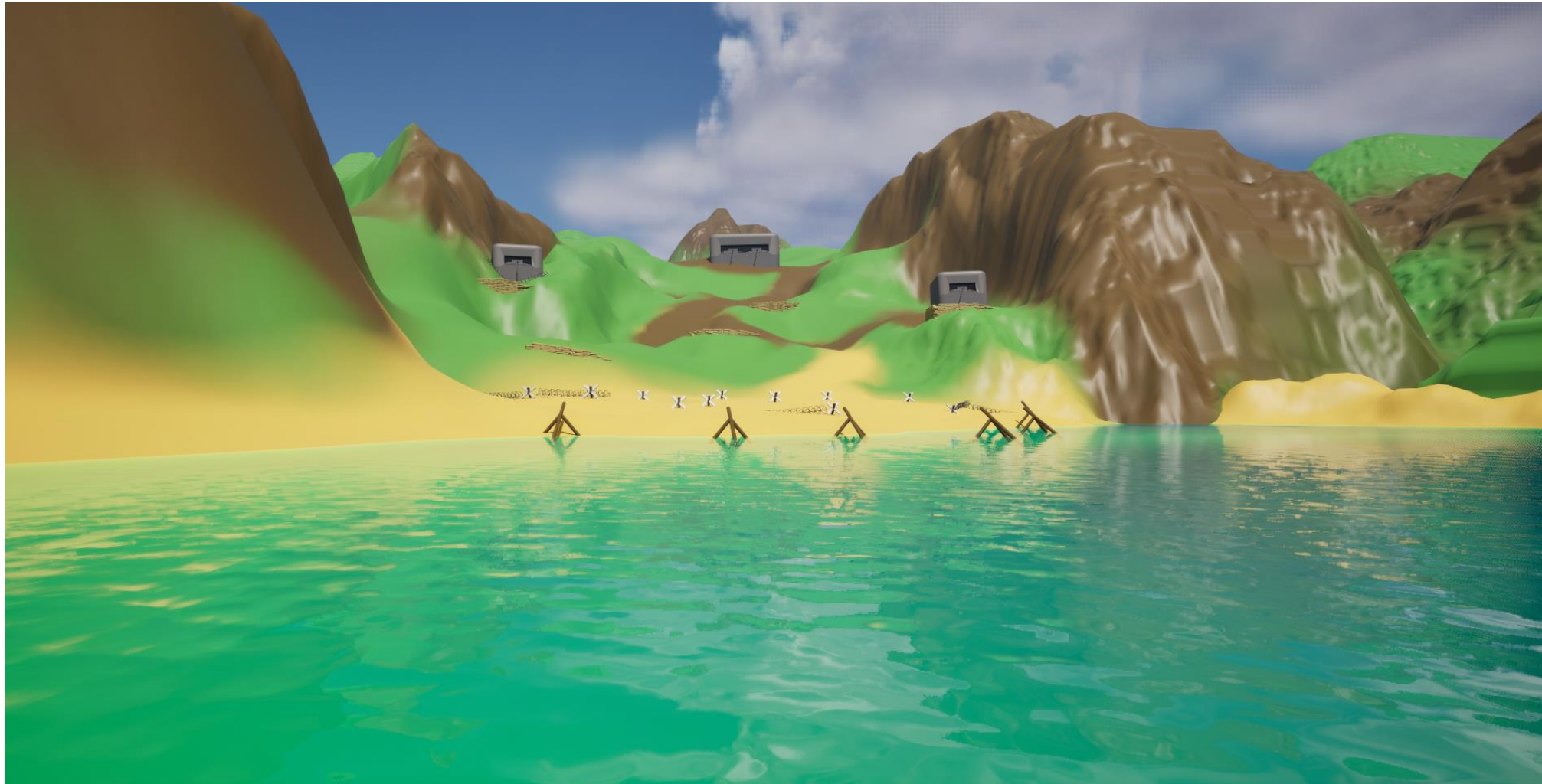


Adding in the water system has helped me visualize the scene a lot better, I am unsure if the scene is currently large enough, it is much narrower than my original blockout.



# BLOCKOUT PROGRESS:

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After adding in some more of my blockout assets, I have started trying to work out the pathing the player needs to take.

Currently I have added in a clear pathway, but this won't be as clear later down the line.

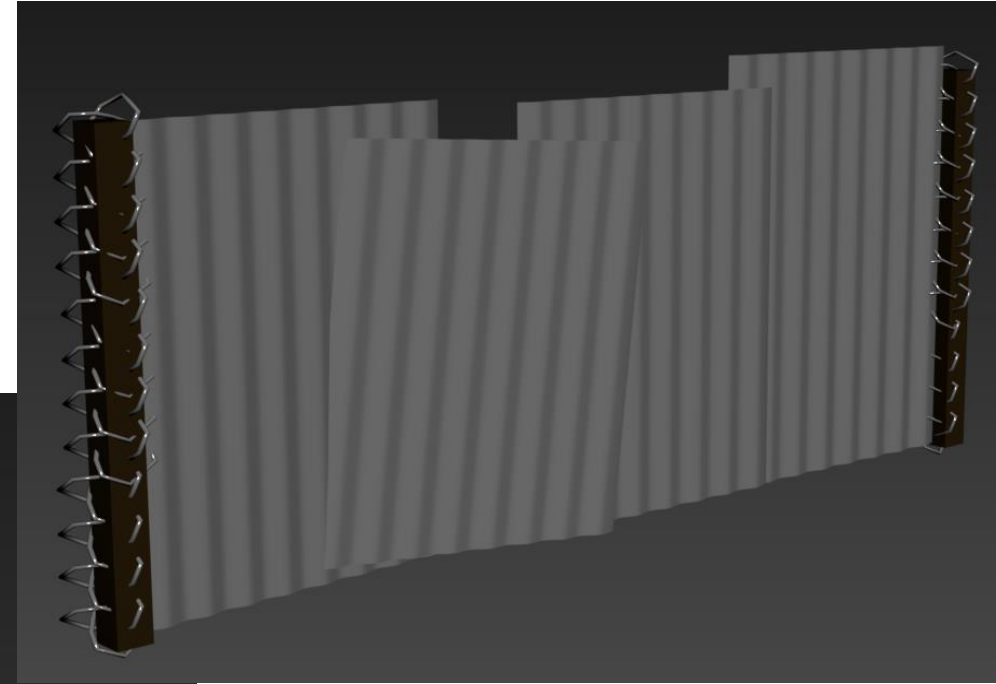
I have also set up a quick camera, so that I can get a good idea of composition.

# BLOCKOUT PROGRESS: ASSETS

Asset list to fill the trenches:

- Barrels
- Stools
- Tables
- Ammo box
- Debris
- Sandbags
- Wooden pallets
- Weapons box

Trench walls: I have quickly blocked out the trench walls that will be imbedded into parts of the scene as the player moves up the hill.

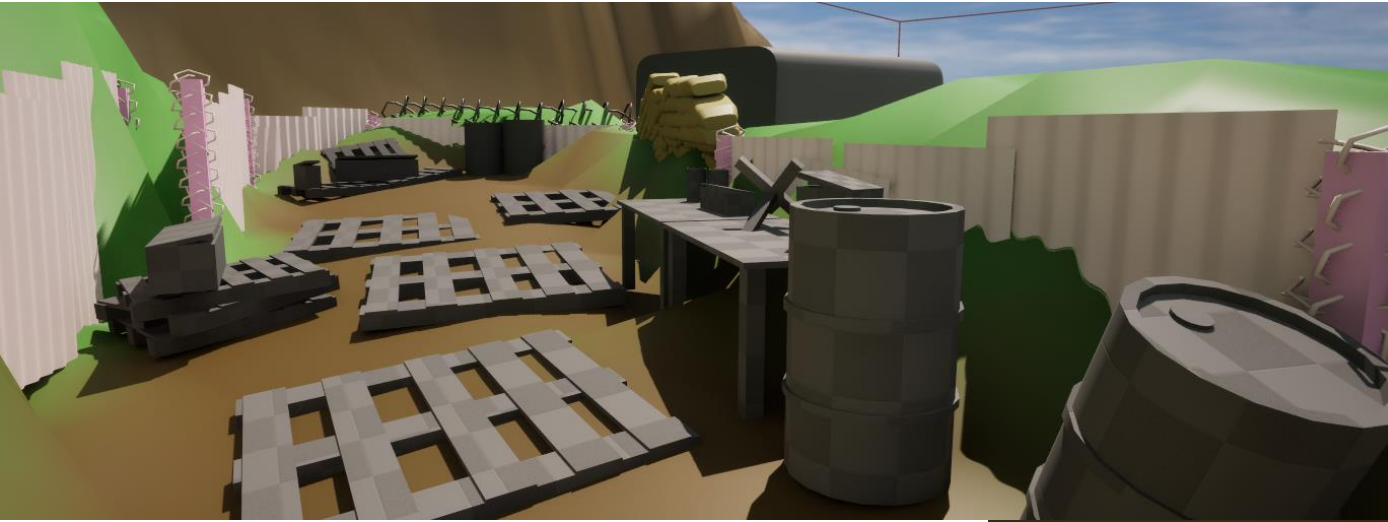


Quickly blocking out some more basic assets that I can spread throughout the scene

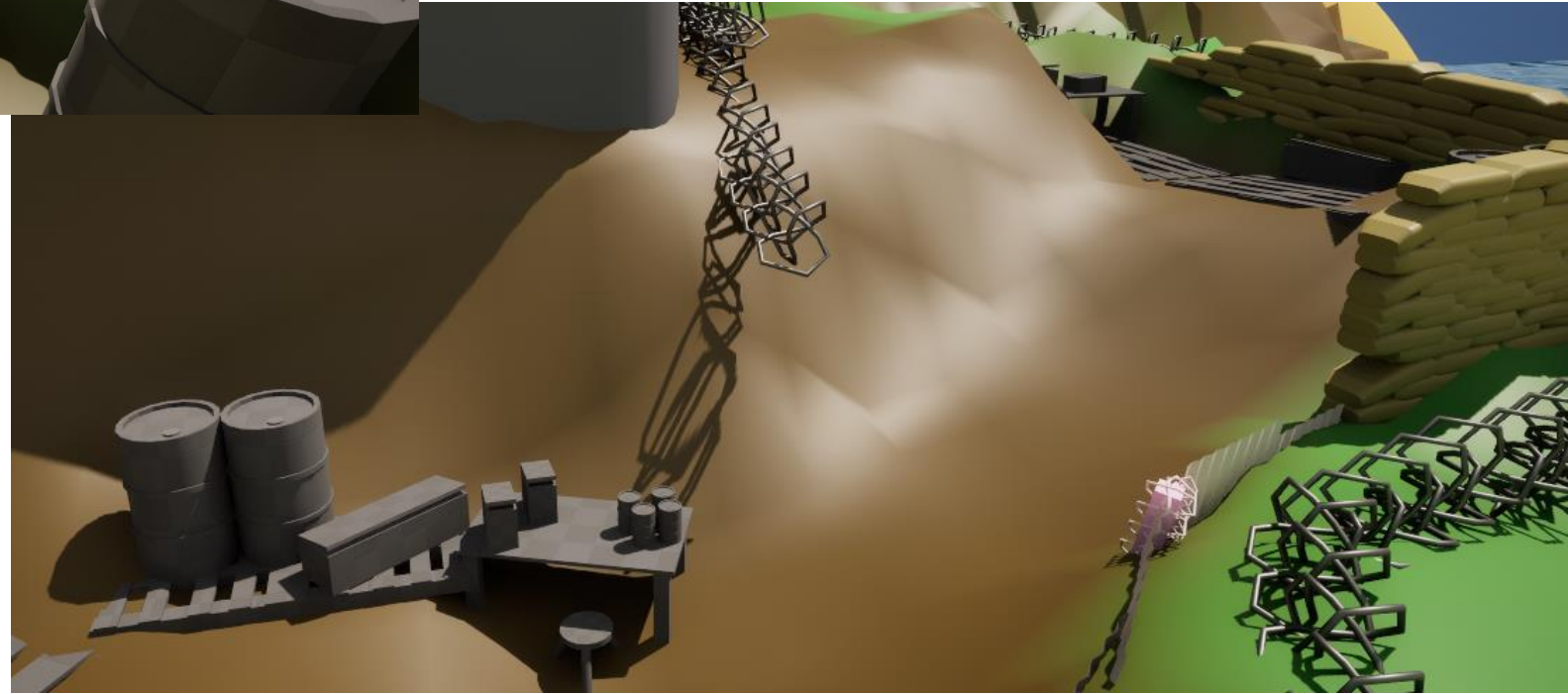


# BLOCKOUT PROGRESS:

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I have improved my blockout by starting to set dress some of the trenches with some more assets, trying to add to the story telling and emersion.



# BLOCKOUT PROGRESS:

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I wanted to add some more assets to the scene, after looking at some of the reference images of the D-day landings you would expect some kind of base of operations to be setup once the beach had been taken.

As this project is set a couple days after the initial landing, they would have had time to set up some tents and some order would have been restored in parts of the environment leading to the area I have added to the blockout.





# BLOCKOUT PROGRESS:

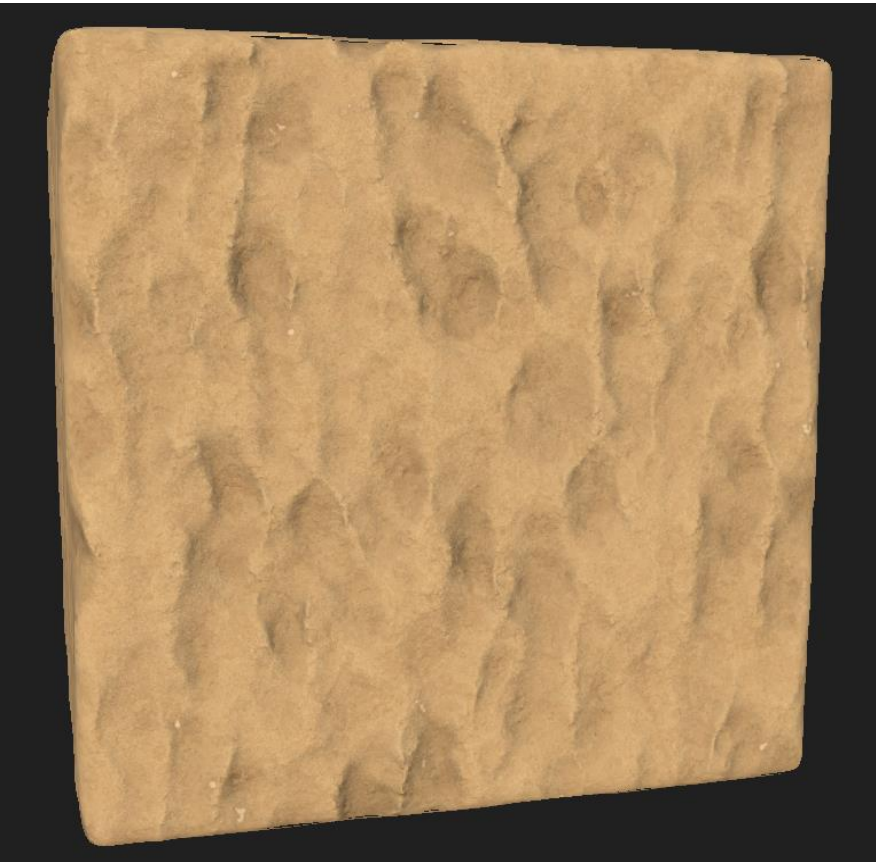
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# MATERIAL CREATION - SAND

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I have started creating a sand material in designer that I can use for the beach and the bottom of the hill, I am trying to get some of the normal detail showing a little bit more, I am planning on taking it into Substance Sampler to add some extra detail.



I have experimented with trying to make it look like there are footprints in the sand where the soldiers would have ran at the beach.



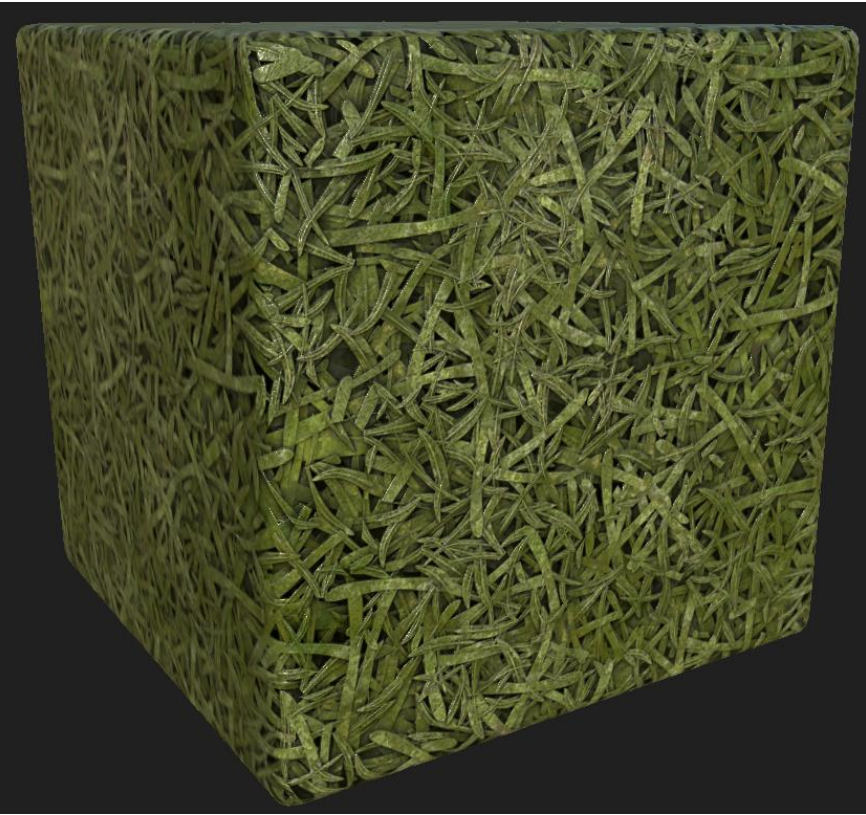
When implemented into engine the result is not quite as prominent as I hoped so I will need to look into a way to make the height be more exaggerated.



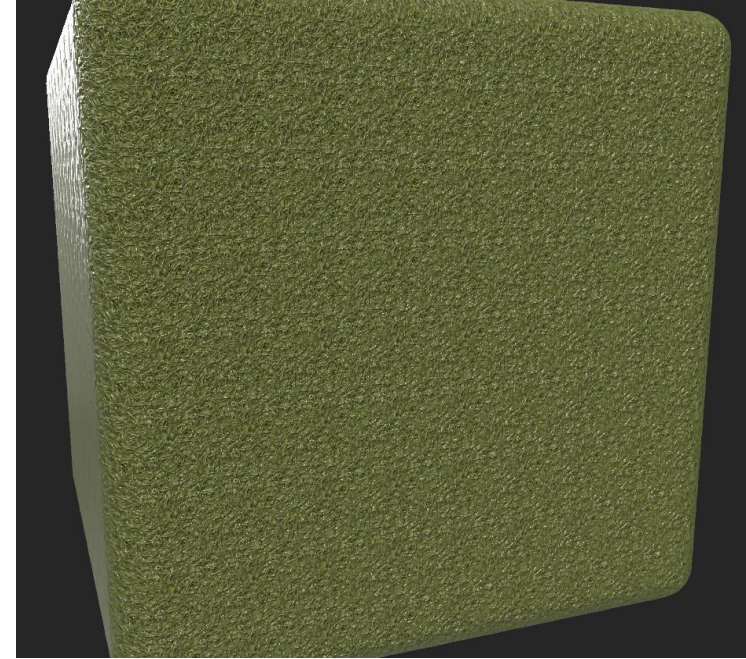
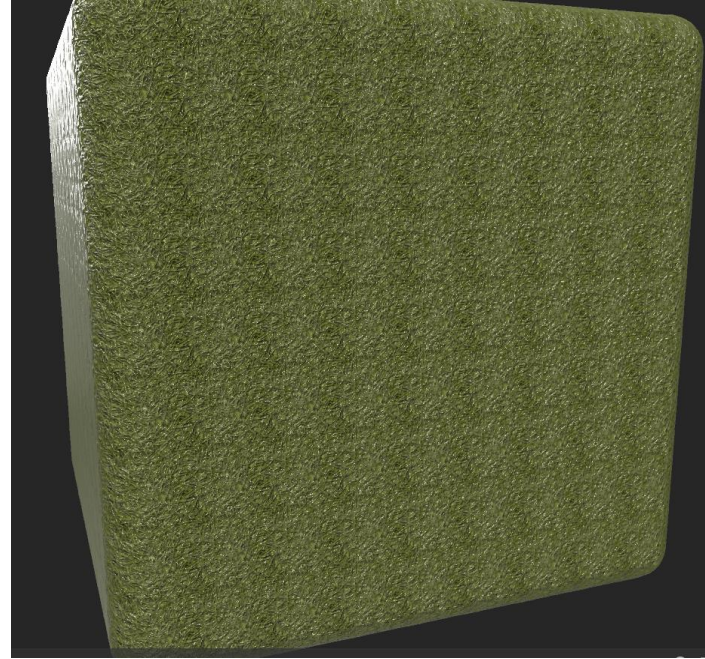
# MATERIAL CREATION – BEACH GRASS

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I am in the process of creating a grass material that I can use on the beach, I am using designer for a base however I am struggling with tiling issues.



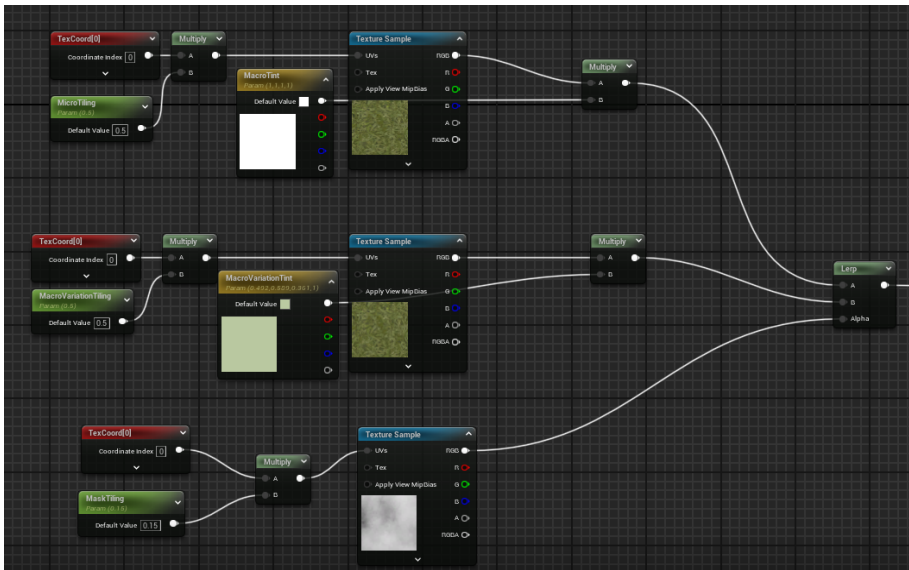
Designer Result:



I took my designer material into Sampler and added a Make it tile layer to fix some of the tiling issues.



# MATERIAL CREATION – BEACH GRASS



In Unreal I have set up a Macro and Micro Texture variation to stop tiling issues. By layering over a slightly different grass colour with an alpha map I was able to break it up a little more making it look more natural. This has greatly improved the look and I am going to look to do something similar with the mud to make it look better.

Much nicer result with less obvious tiling:





# MATERIAL CREATION - MUD



I am pleased with this mud material I have created for the trenches as there is lots of detail and height variation that would be expected with the chaos of soldiers rushing through the trenches.



After checking the tiling, I am happy with the tiling, there is a little bit of noticeable tiling looking at the cube but once it is in unreal it is not easy to see.





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# PROGRESS:





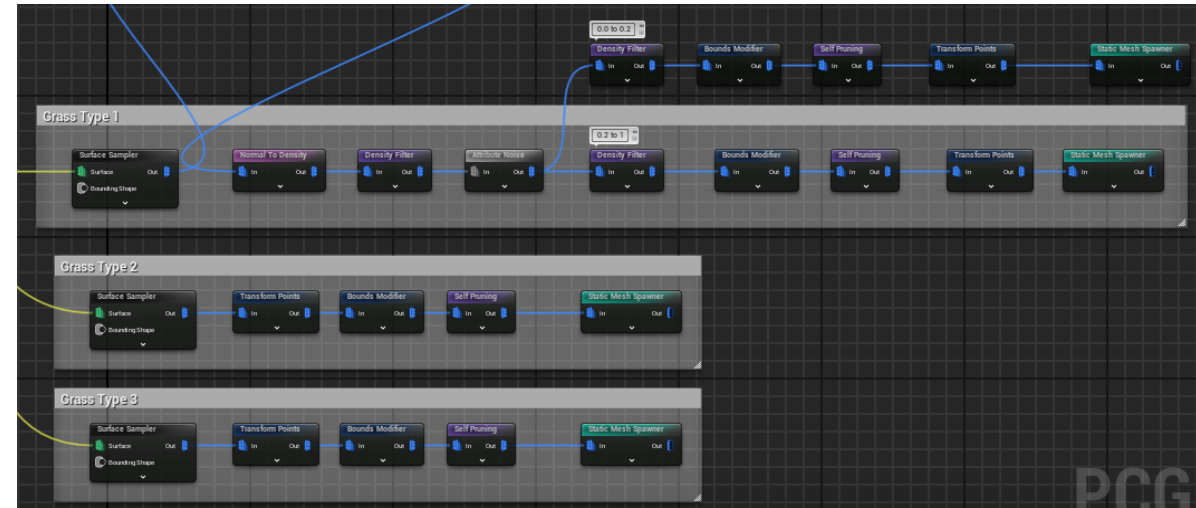
# FOLIAGE: GRASS

I have taken a grass foliage pack (<https://fab.com/s/402bf2565528>) from Fab to populate my scene.



Setting up a PCG Graph for the grass has been very helpful and given me lots of control between the different grass meshes.

There are two different PCG graphs spread throughout the scene with different density of grass, the grass closer to the beach is less dense with the landscape more visible showing through.



# FEEDBACK:

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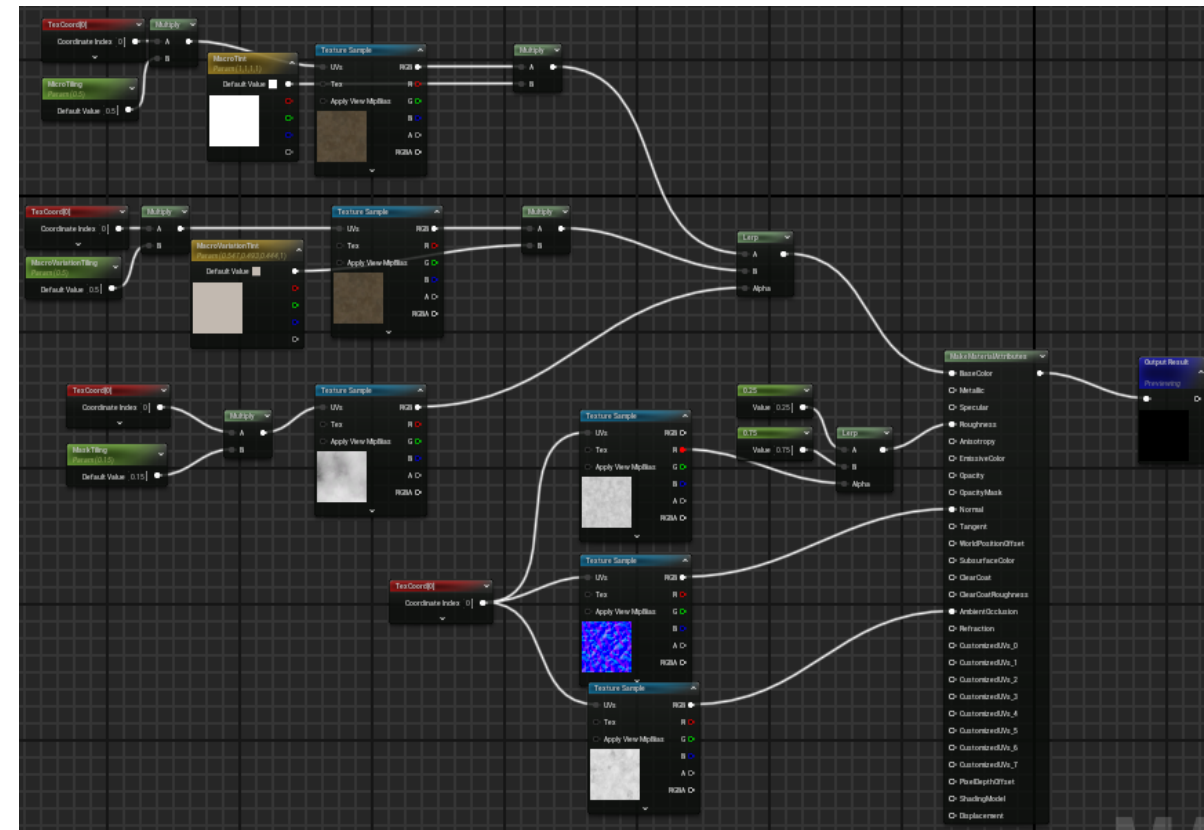
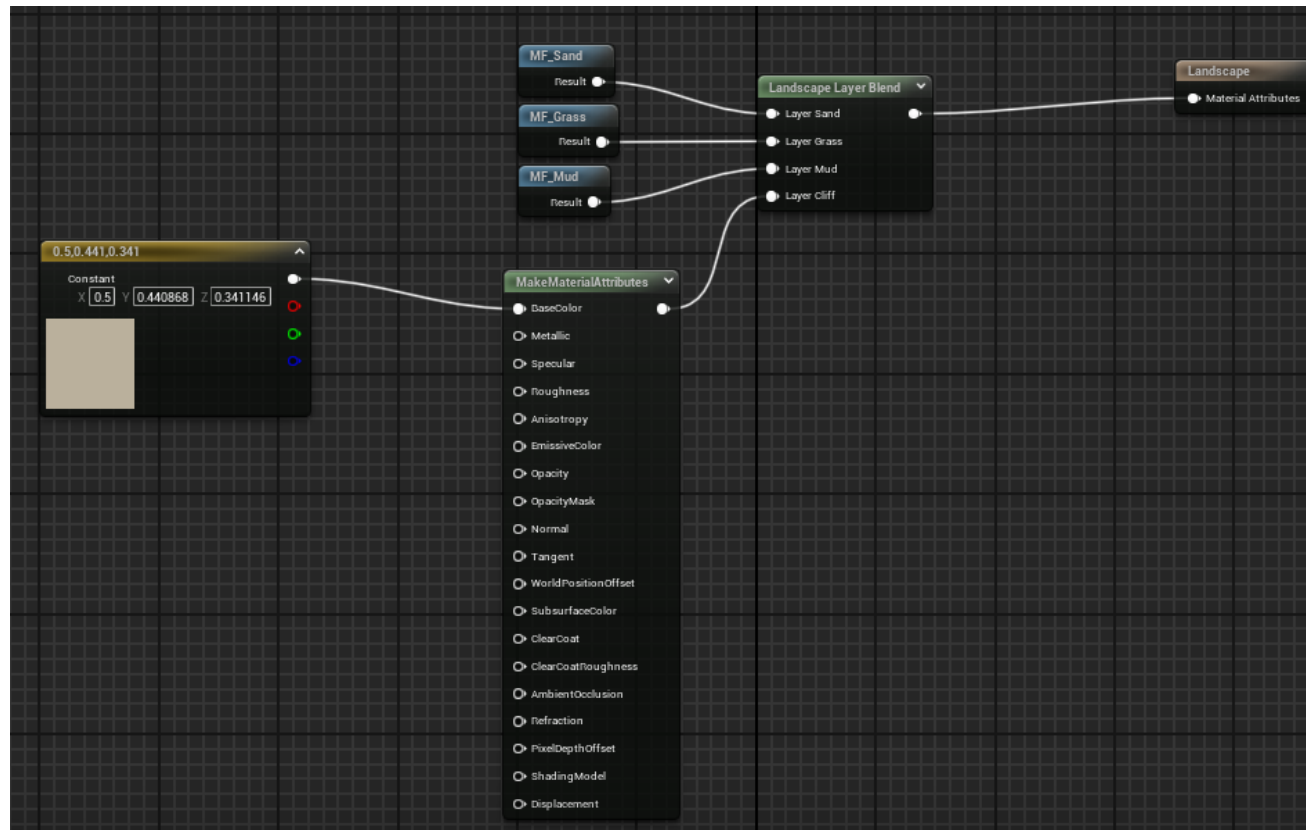
- Priority is sorting out the coastline
- Materials are a little too shiny ( make use of material functions). Set teach texture to wrapped.
- Small problem with the grass with the LODS popping in and out with the camera depth.
- For the water, take the material instances and make them my own so that they save when I reopen my editor.



# FEEDBACK – CLEANING UP LANDSCAPE MATERIAL

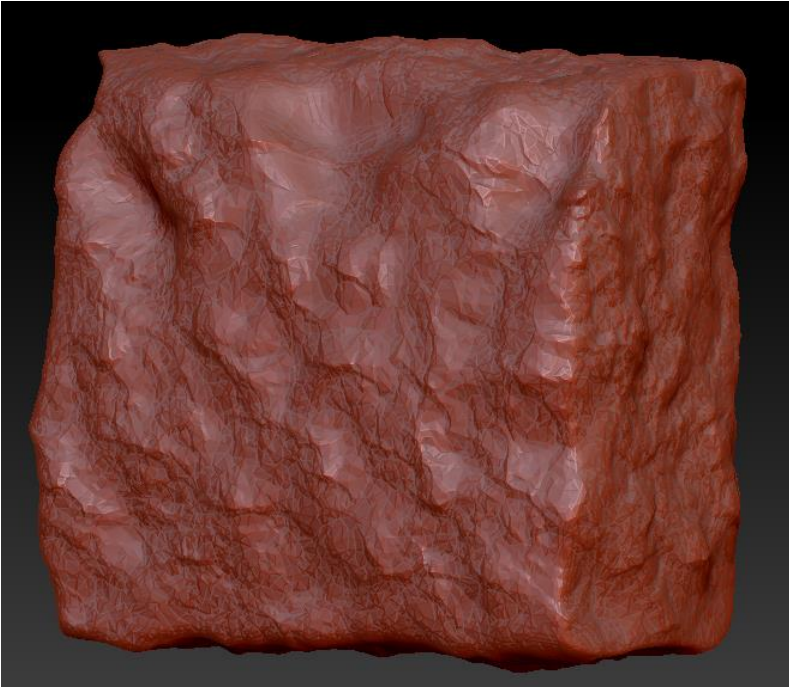
After receiving some feedback, I edited my landscape material by using material functions trying to fix some of the normal problems. This has also helped tidy up the graph in case anyone else was going to look at it making it easy to follow and understand.

I have also made sure that all of my texture are set to 'Shared: Wrap' in Sample Source for the best result.

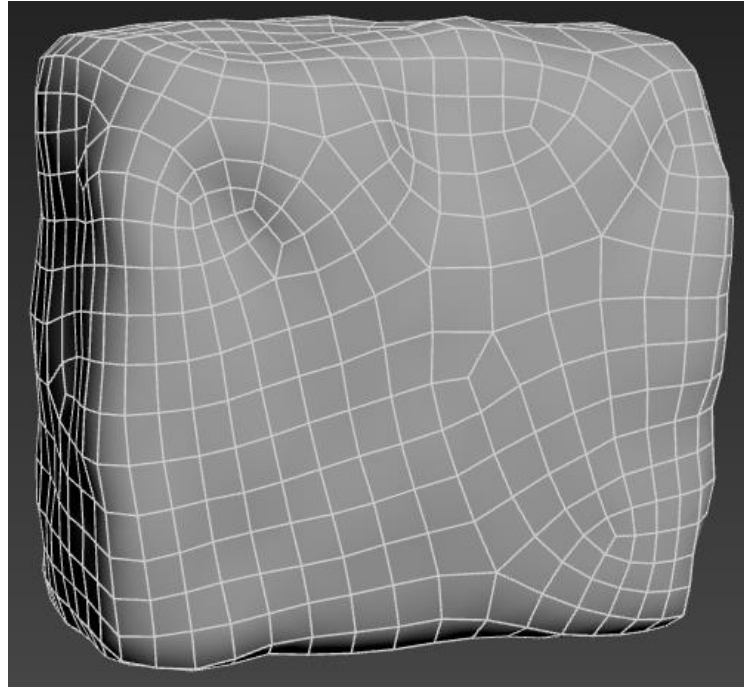


# ROCK CREATION:

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HighPoly - Zbrush



LowPoly- 3Ds Max



Bake - Painter



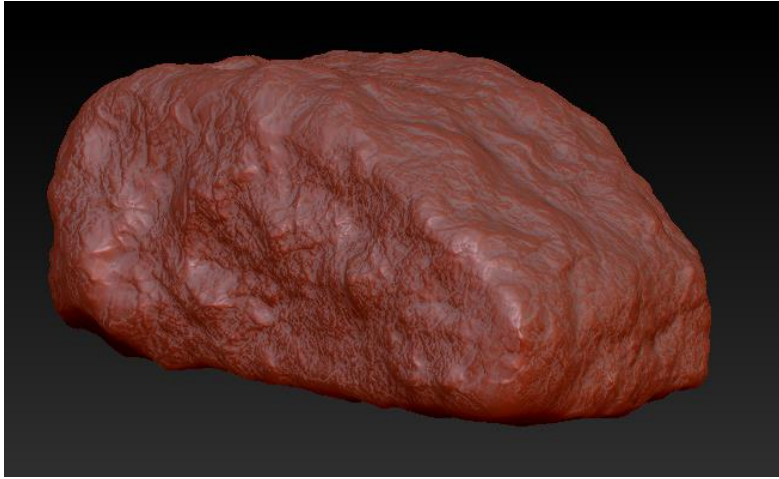
For my cliffs I am planning on creating a couple different cliff models that can be layered together to build up the natural rockiness of a weather beach cliff.

I have decided to do the highpoly modeling inside of Zbrush, where I can take advantage of the rock orb brush pack I have. This will allow me to use alphas to add lots of realistic rock detail and noise to the model and bake it down ready for painter.

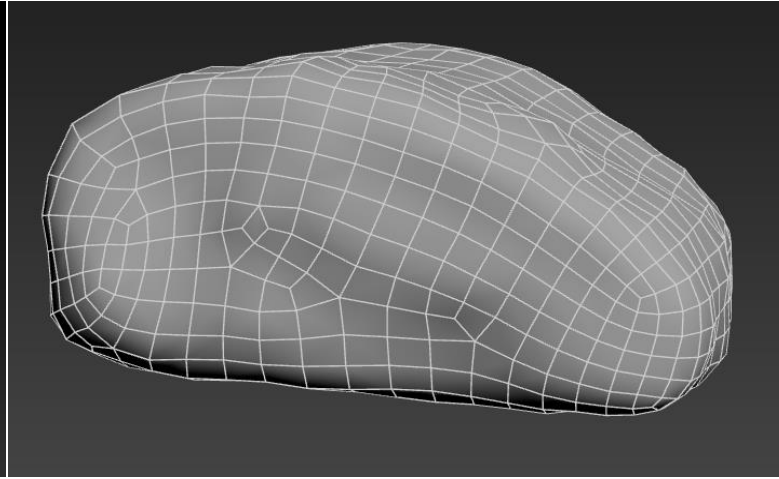


# ROCK CREATION:

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HighPoly - Zbrush



LowPoly- 3Ds Max

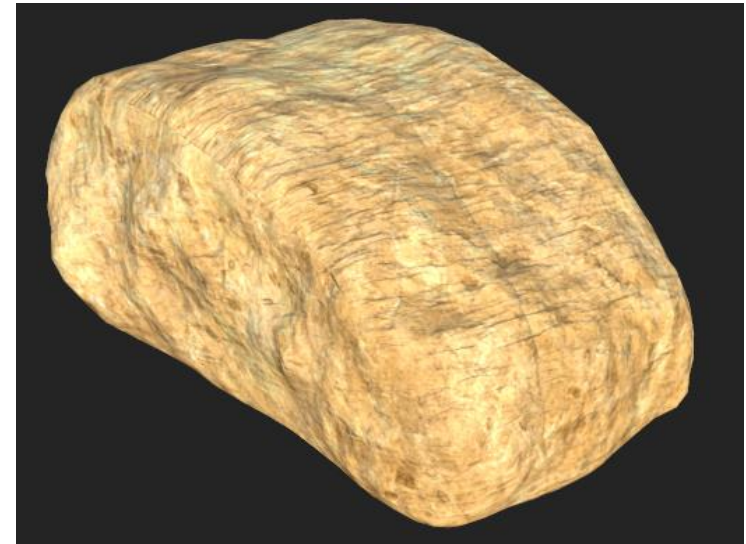


Bake - Painter

Second cliff, has been created following the same process and textured the same way to keep consistency so they work well when pushed together.

I was able to make my last rock into a smart material that can be applied to this one so they work together seamlessly, my one concern is if there is going to be enough variation in the cliff face.

Painter





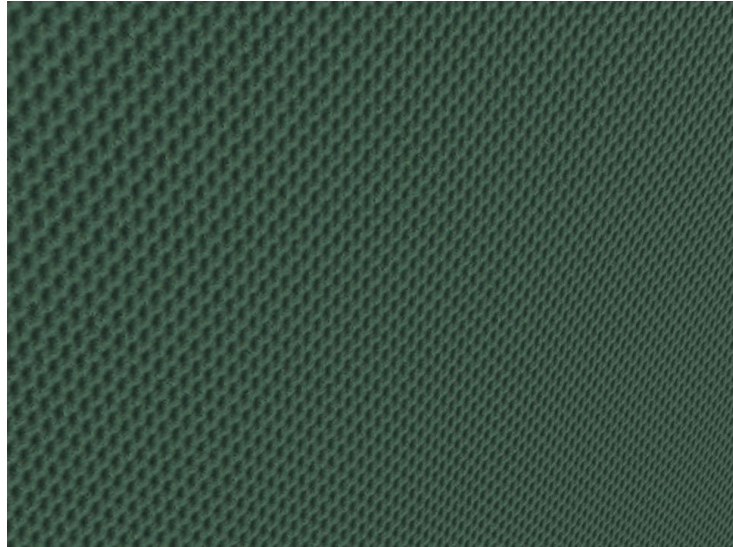
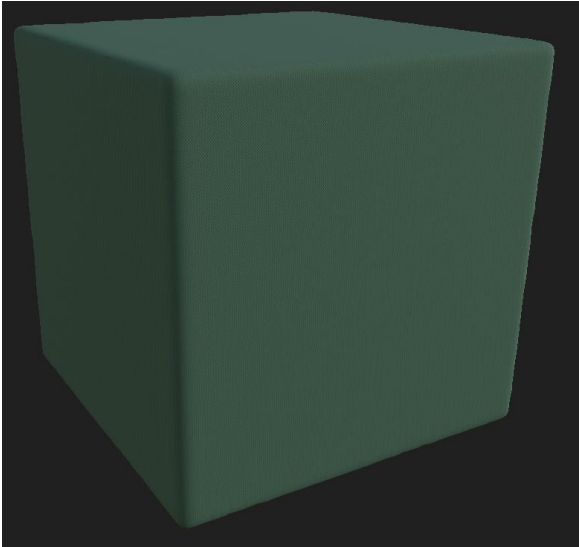
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# PROGRESS:

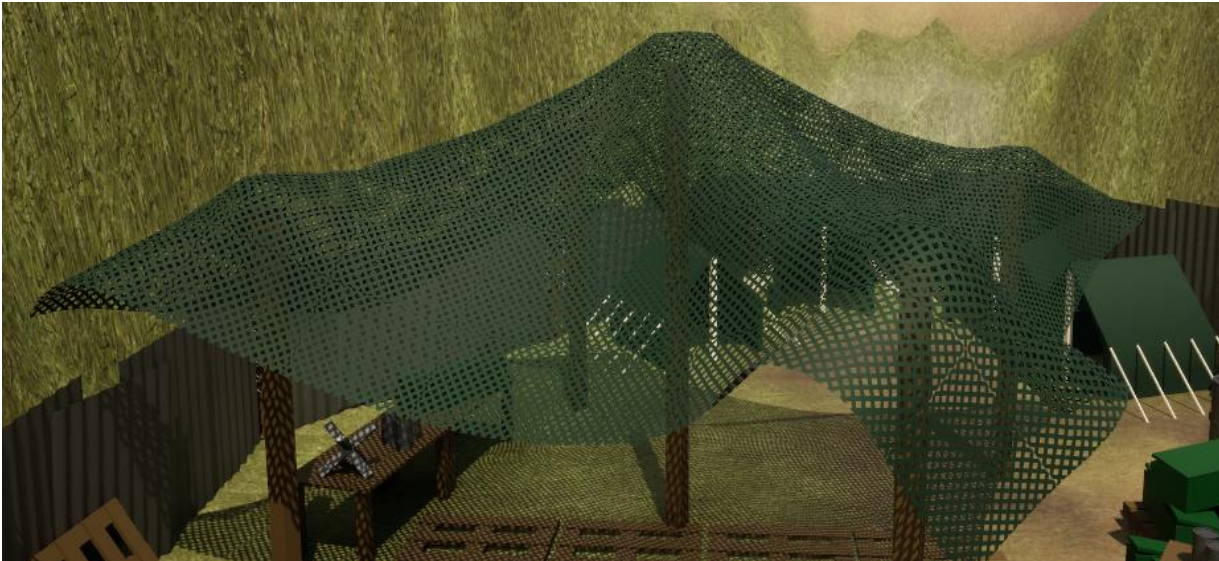




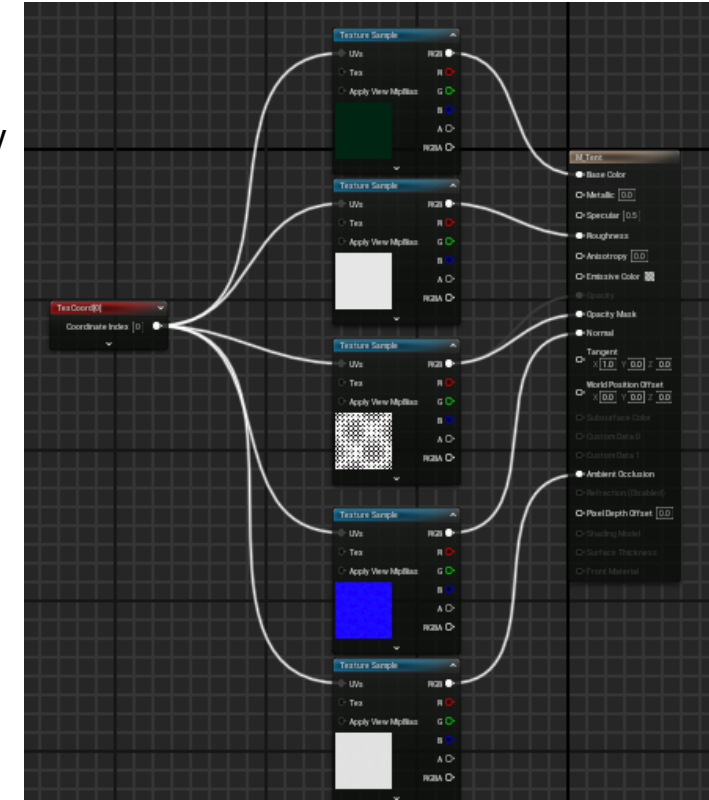
# TENT MATERIALS:



I have attempted to create a tarp material for the tents and canopy inside of designer, I like the material inside of the designer viewport but once it is unreal it doesn't look as good as it lacks the depth and ambient occlusion that really pops inside of designer.



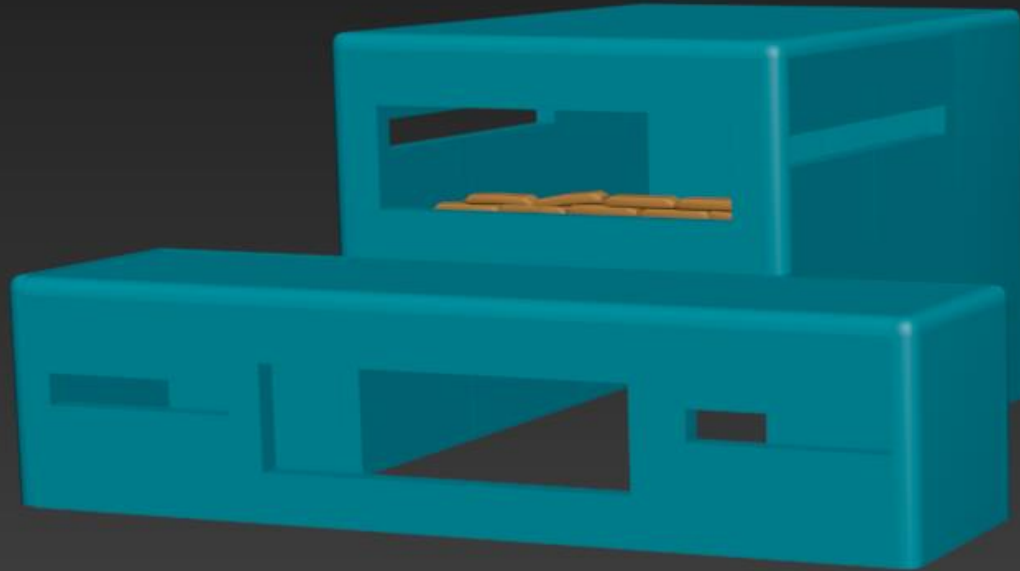
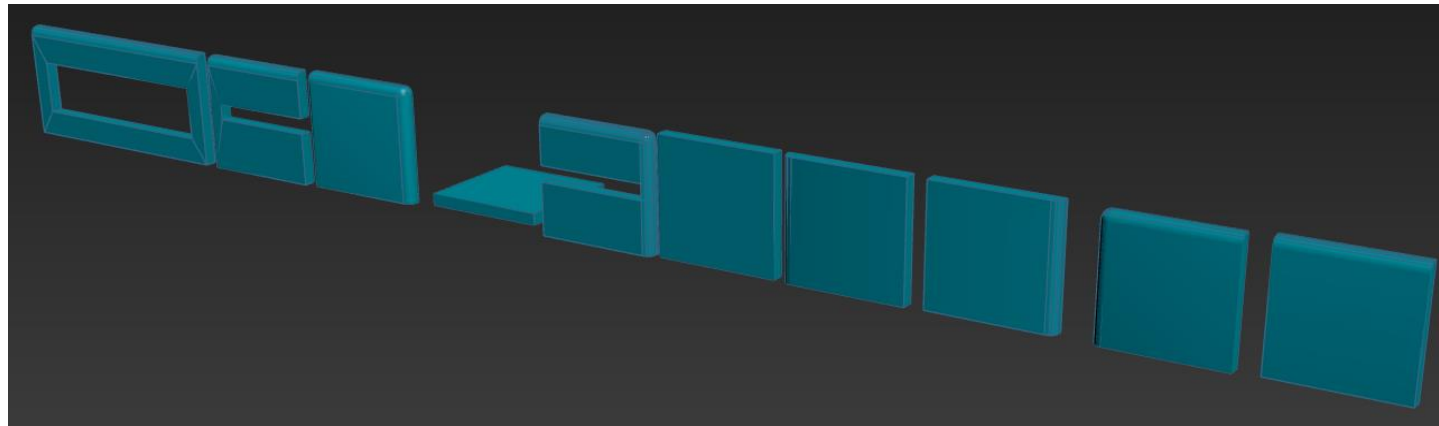
I created the opacity map in Photoshop however I think it can be redone to give a better result as it is currently quite sharp and repetitive.



# BUNKER PROGRESS:

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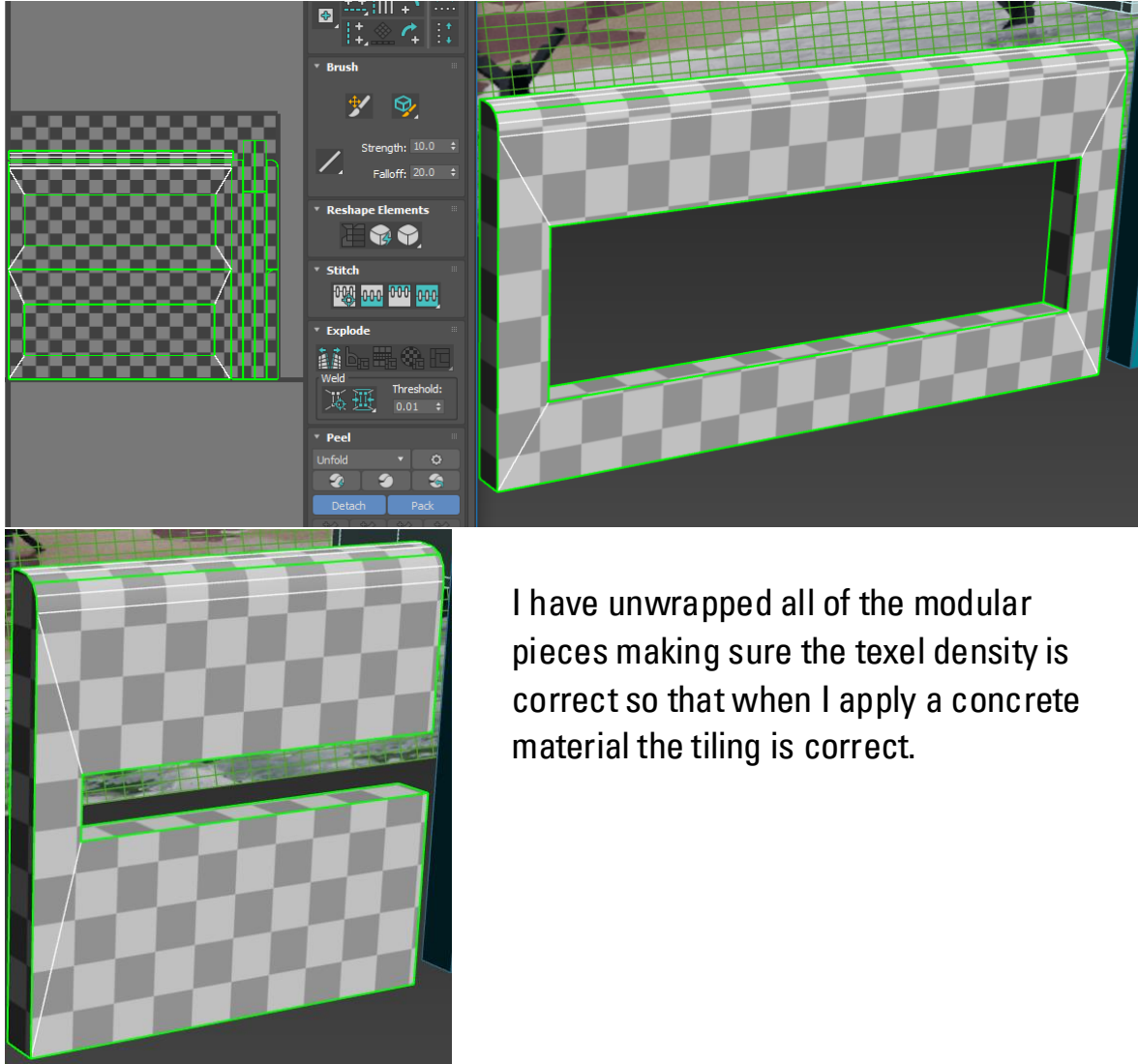
I didn't like how my bunker was looking in the blackout stage, so I have re-started it again focusing more on clean modular pieces. As it is the focal point of the scene, I also wanted it to stand out a little more as a statement piece instead of being a standard rounded pill box.



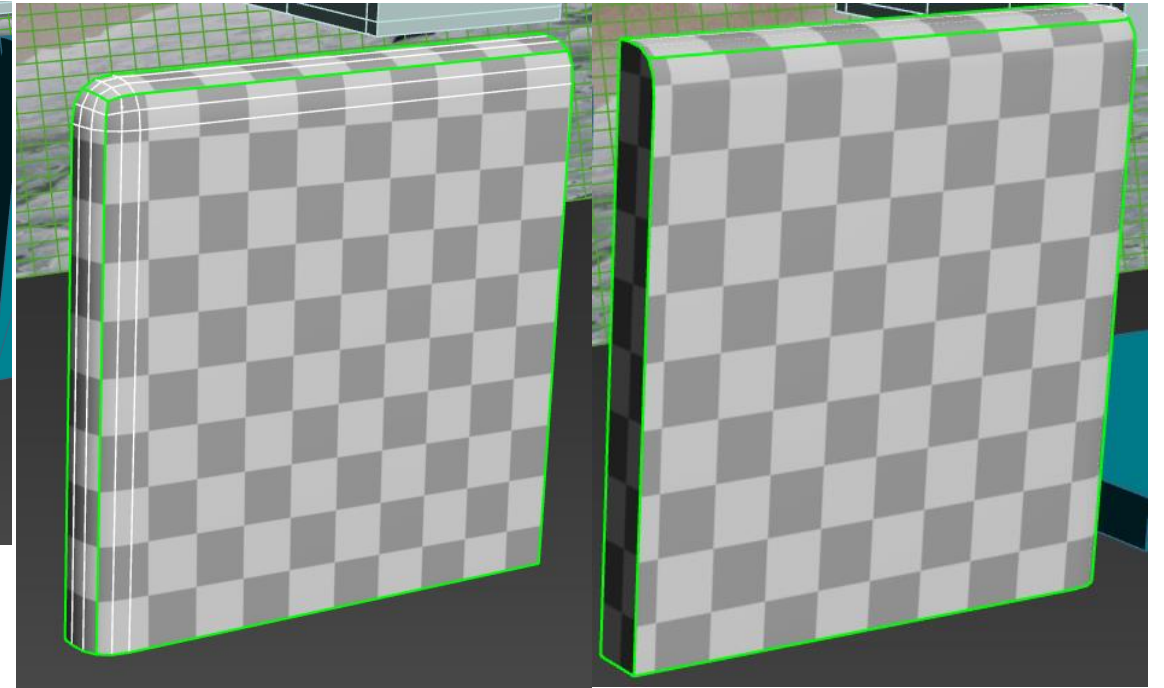
I have made extra pieces so that I can create more interesting branches that come off from the original bunker as if there is a small network for the soldiers to safely move around in.



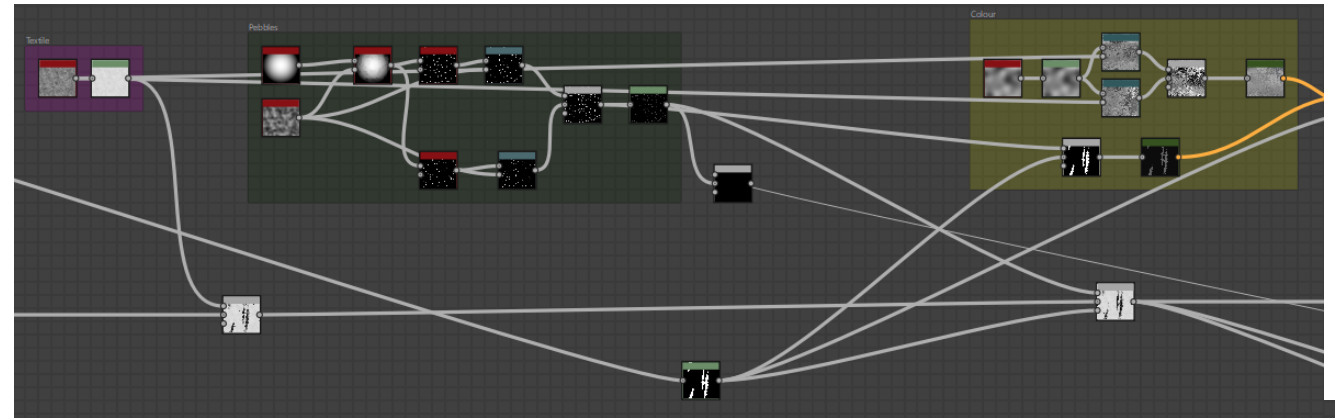
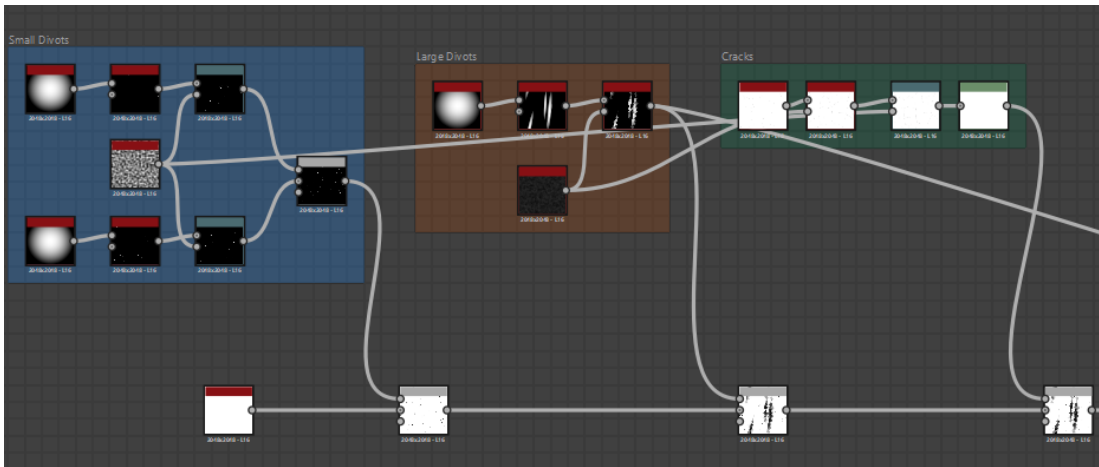
# MODULAR UNWRAPS:



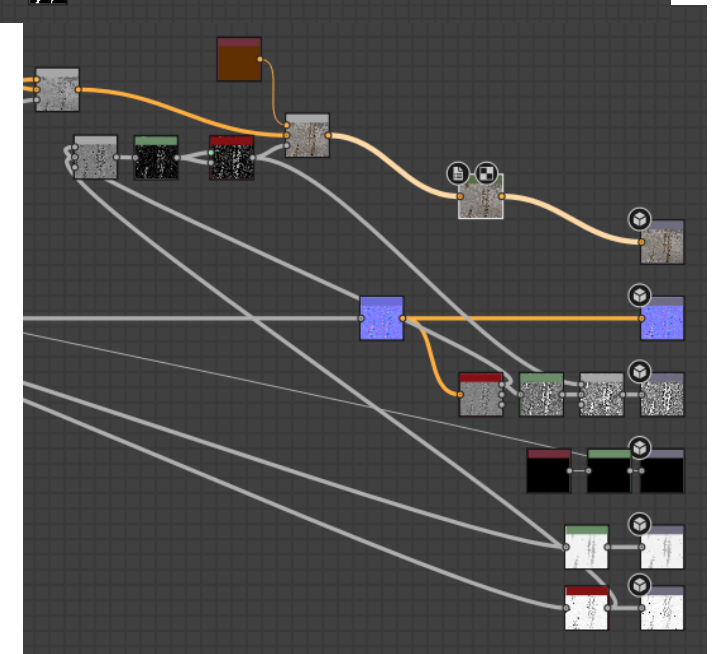
I have unwrapped all of the modular pieces making sure the texel density is correct so that when I apply a concrete material the tiling is correct.



# CONCRETE MATERIAL:



I'ma very happy with the base of this material however after testing it, the large divots are causing lots of problems when it comes to tiling. Due to this I am going to remove them and try to add them back in later using decals.





# FEEDBACK:

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# FEEDBACK:

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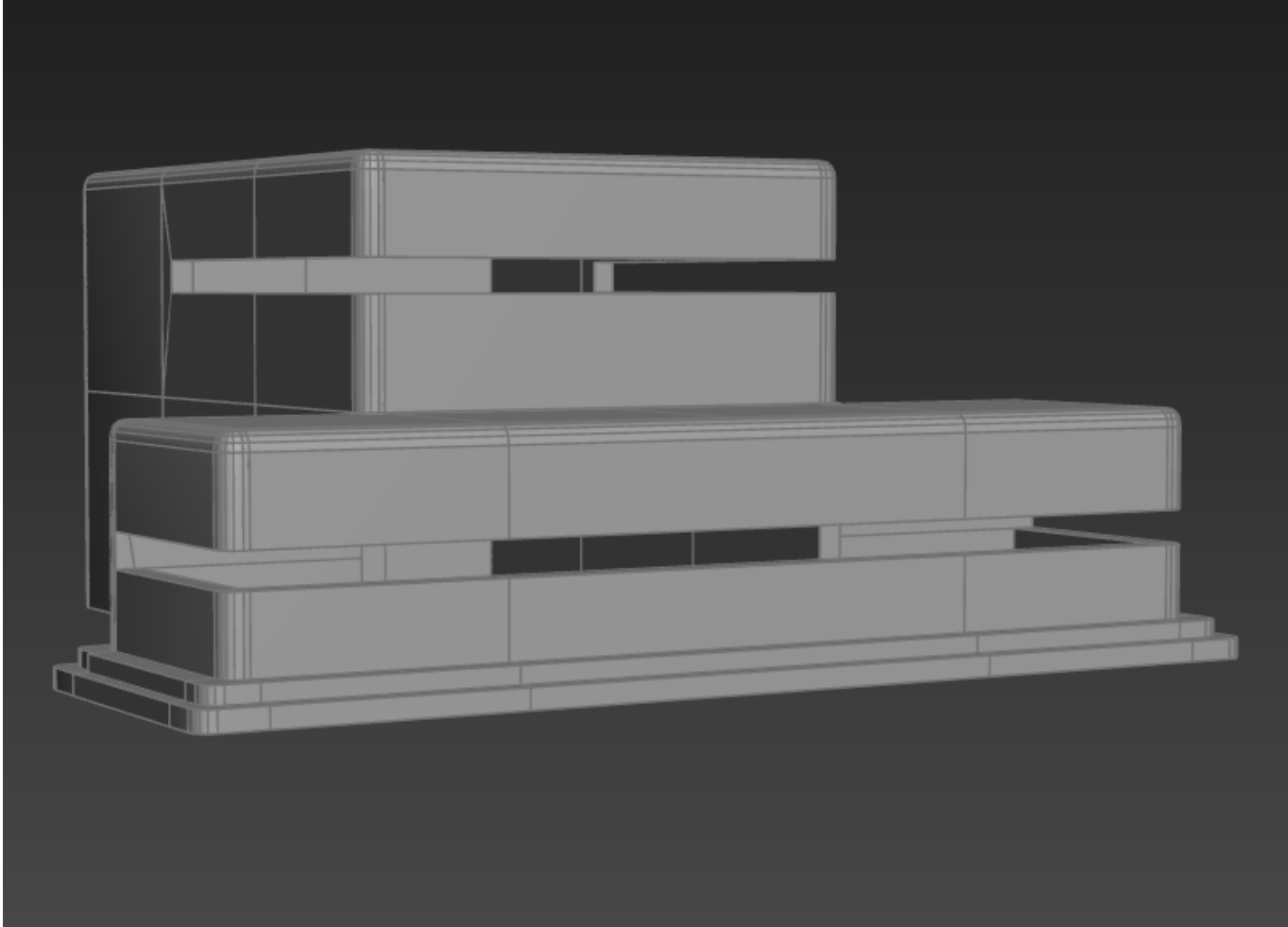
- More interesting rocks, so they can be put together to make more natural cliffs
- Cloud cards for rolling clouds in the background
- Gather more references throughout the process
- Currently it is looking built from my head rather than references, keep checking initial research.
- Improve my bunkers to match the reference images gathered, they are not just a standard pill box.
- Use Sampler and Atlas scatter to add Quixel rocks onto my materials?



# BUNKER IMPROVEMENTS:

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After getting some feedback from my mid-point review, I have done some more work on my modular bunker creating some more modular pieces that more closely relate to the reference images I have gathered.

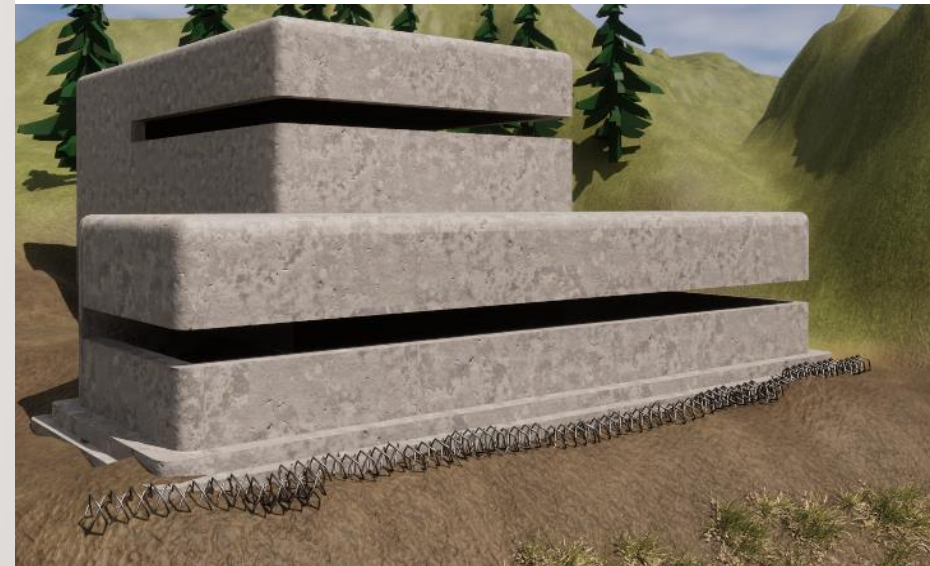


# BUNKER IMPROVEMENTS:

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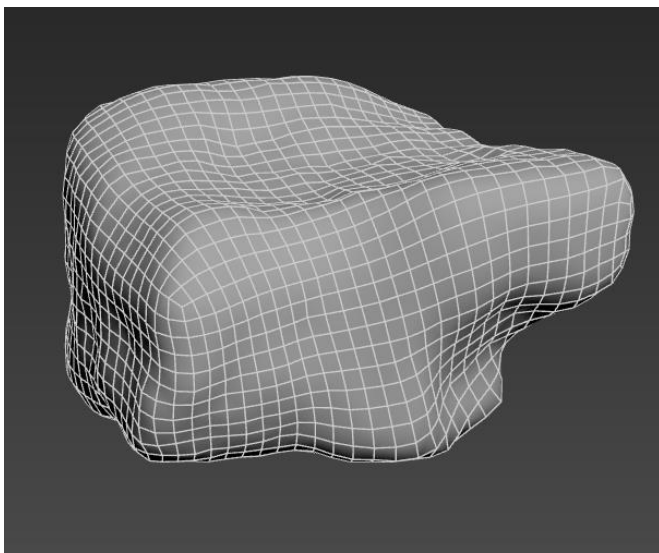
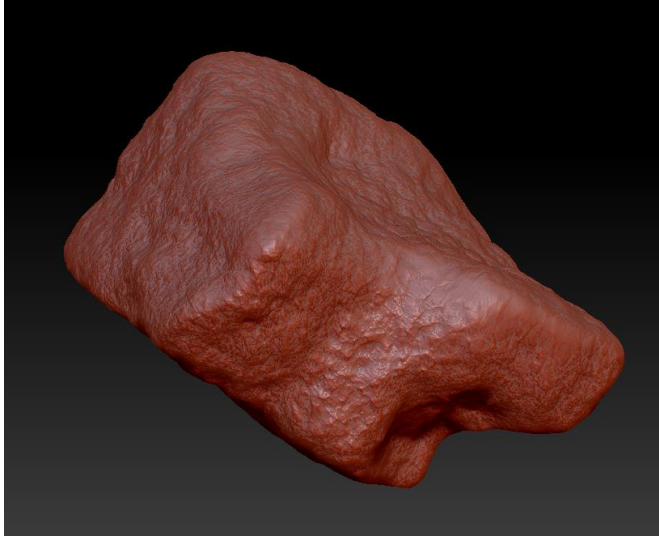
I have re-imported my bunker into unreal and added the new modular pieces. This bunker matches the reference images a lot closer and is what you would have expected to see at D-Day.



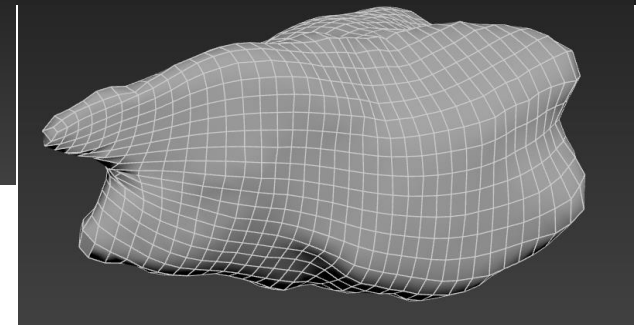


# ROCK PROGRESS:

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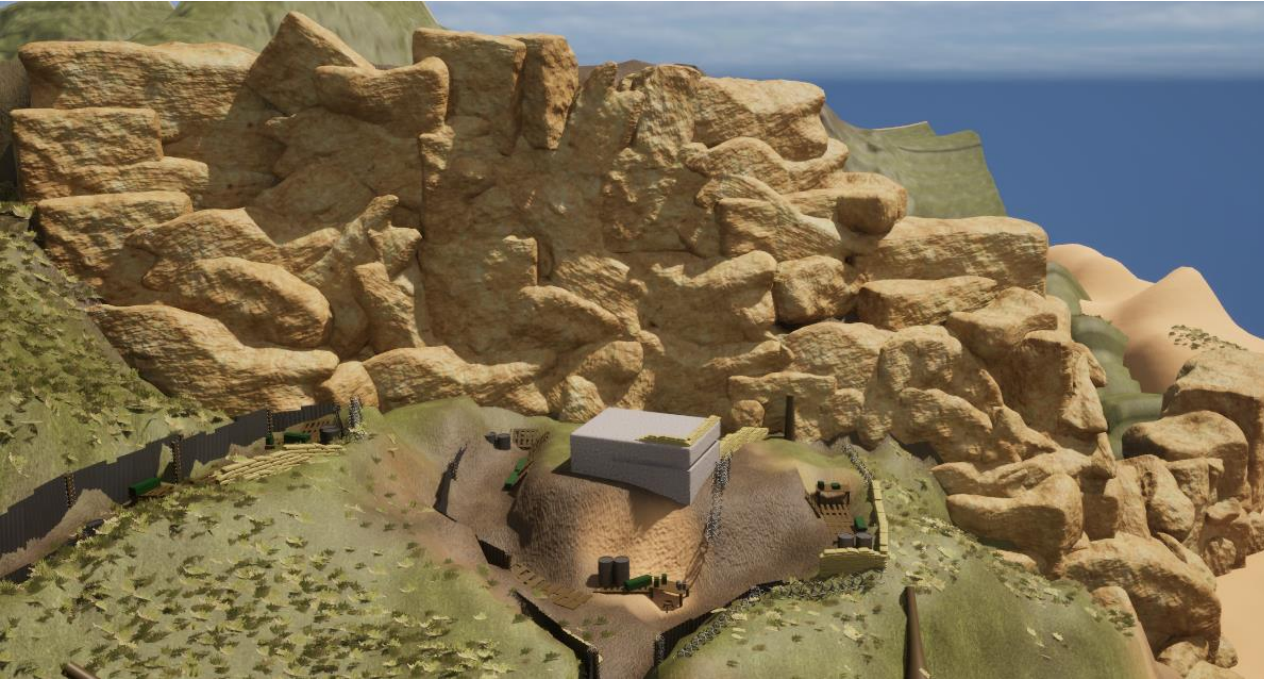
After receiving some feedback saying my rocks weren't very interesting and they were struggling to make the cliffs I have made 2 more with more distinctive shapes to add another layer of detail.





# CLIFF PROGRESS:

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When adding the extra rocks into the cliff face, I have tried to make them look natural, without too many faces sticking out creating hard edges, instead trying to focus layering them up.

The result is much better than before when there was just 2 large rocks building the cliff.





# PROGRESS:

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I have added a BP\_Sky Sphere into the scene so that I can have some control over the lighting and atmosphere.

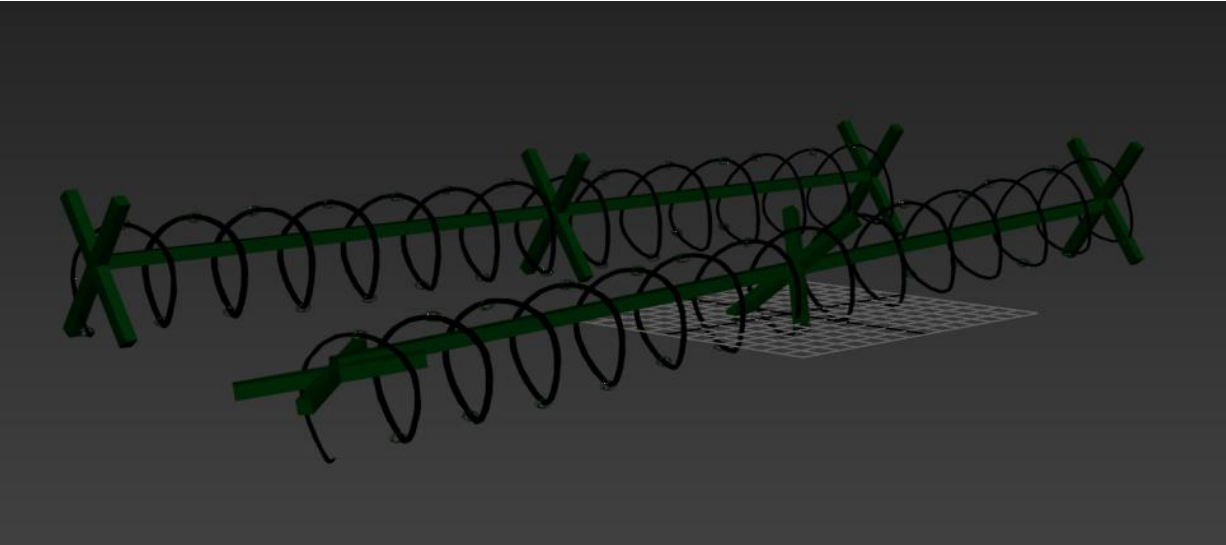
As I am going for an overcast scene I have changed the zenith colour to a soft grey and emphasised the cloud colour.

I am happy with the start of this lighting as it gives me something to build off.

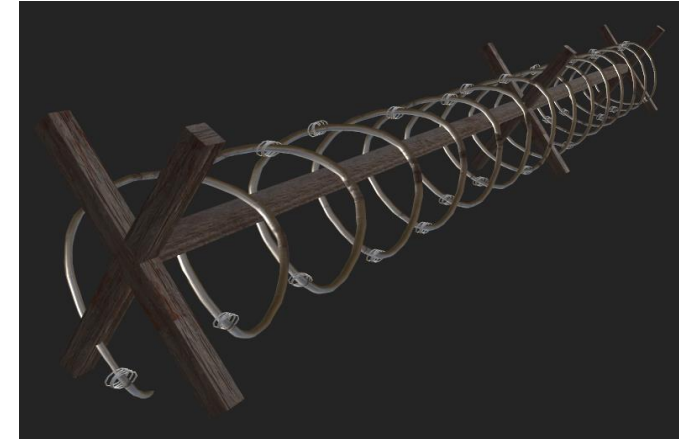


# ASSET CREATION:

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I plan to use the barbed wire to cut of some path ways and help guide the player. They will also be used to help set dress the scene.



To populate my scene, I don't want to rely on just Mega Scan assets so I have started to create some of my own assets. Starting with a barbed wire.





# ROCK CREATION:

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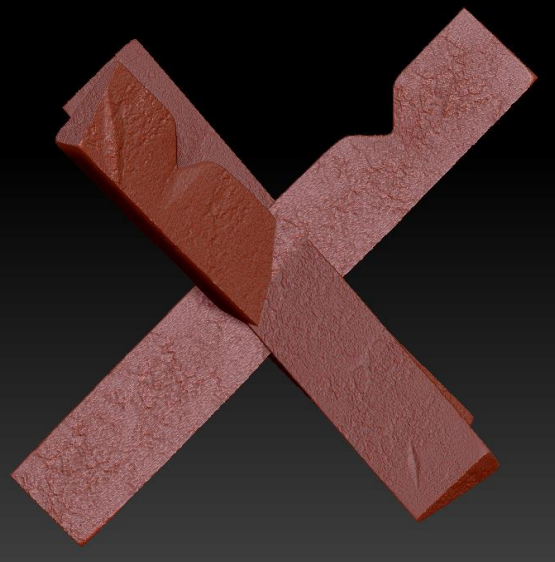
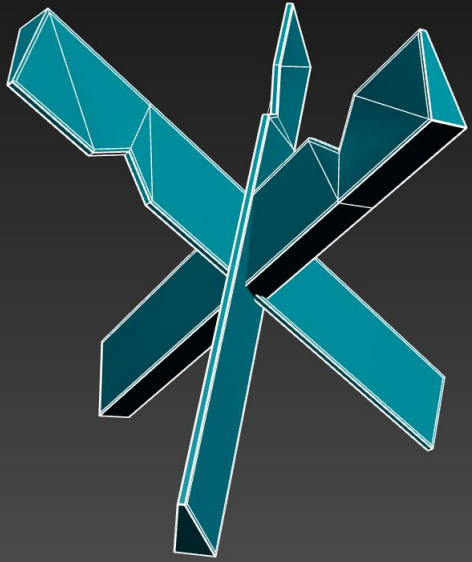
After getting some feedback about my rock faces, I have decided to change them. They were very repetitive and similar; the texture needed some more colour variation through out.

Due to this I have gone back into painter and made some adjustments so that they fit the aesthetic a little better.





# ASSET CREATION: METAL



As I need to fill the beach with different assets, I have looked at some references for the cross' that were used to stop the boats making it to the beach.

I have created my own cross that I can scattered through the environment. I am very happy with how it looks in Painter as I have captured the rust and damage that would have built up after being battered by the sea.





# ASSET CREATION: WOODEN POLES



Another asset that was present in the D-Day landings were these wooden poles used to try and stop the boats. I have tried to replicate the dirt, and algae build up on my wood by layering different grunge maps adding algae, damage and wood variation.



# BEACH ASSETS:

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I have added my beach assets into unreal and they look really good, I have managed to get the damage to stand out whilst still looking natural, the beach still looks quite empty so I am going to have to work on this in the future, I may end up using mega scan assets.



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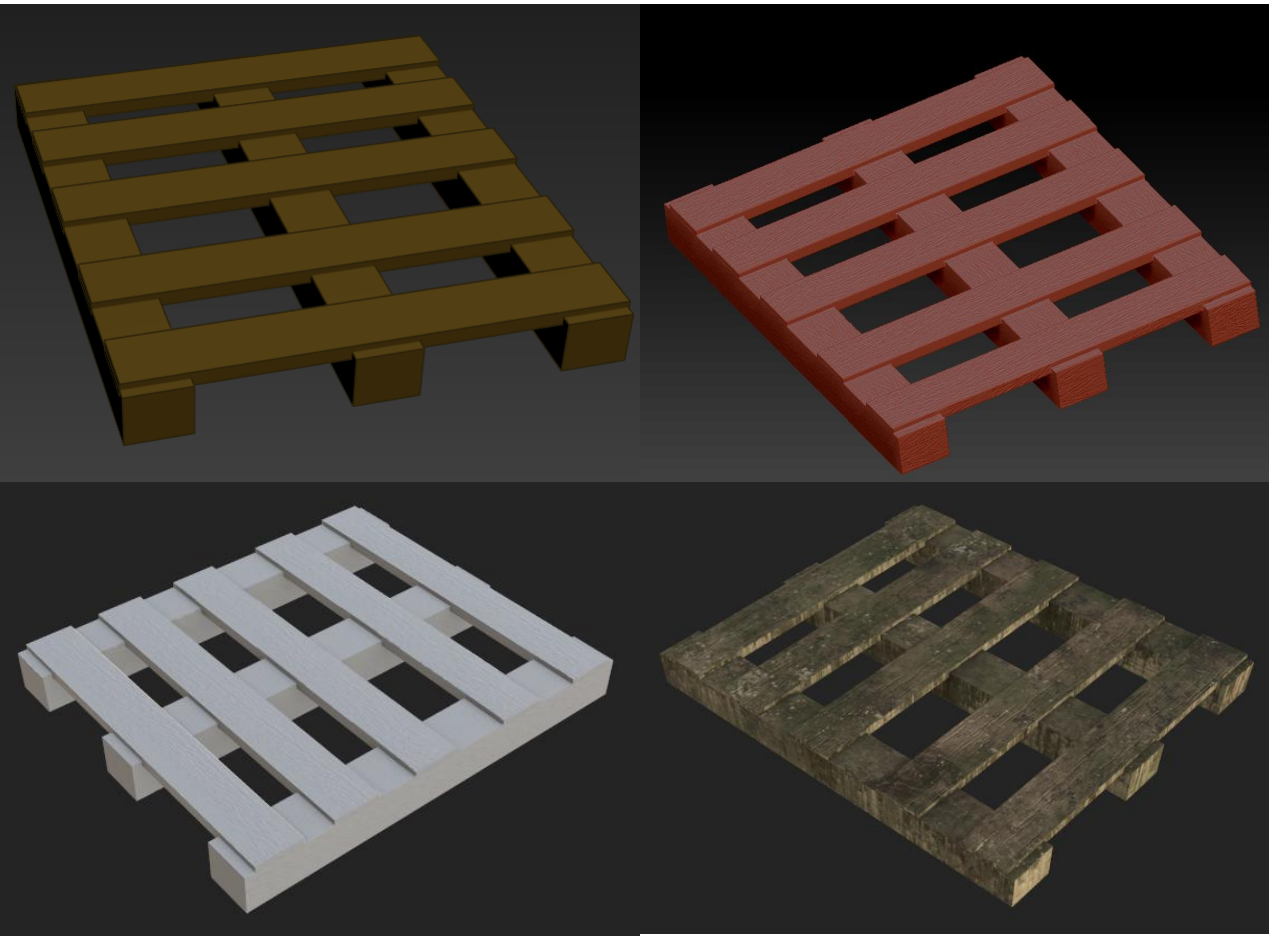
# PROGRESS:





# ASSET CREATION: WOODEN PALLET

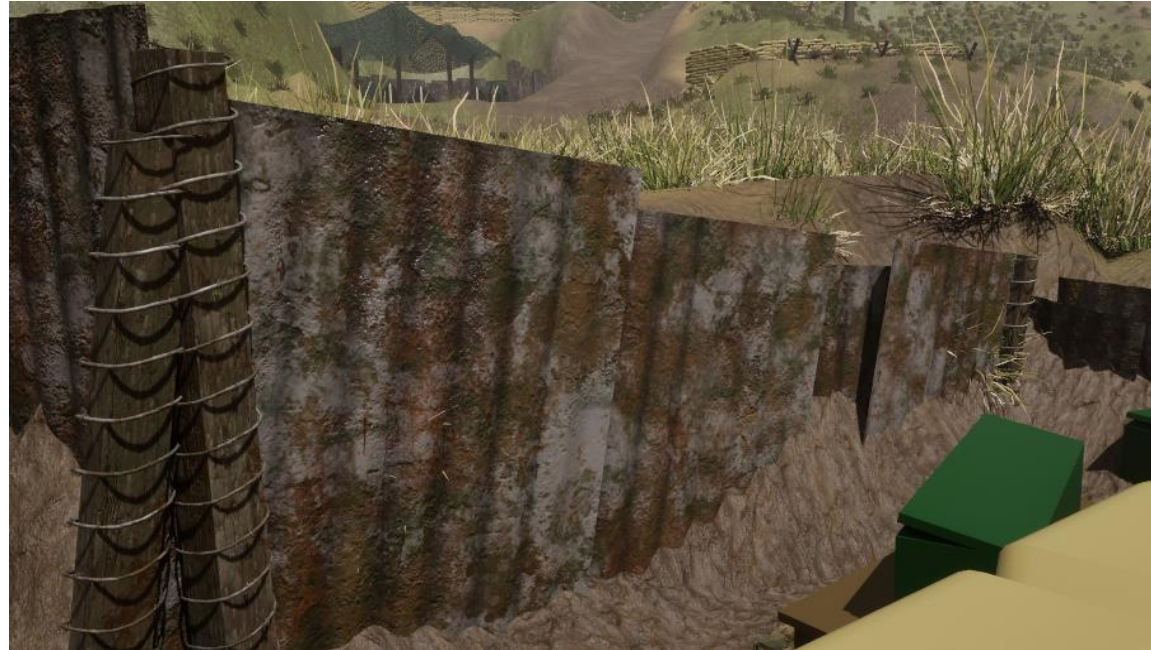
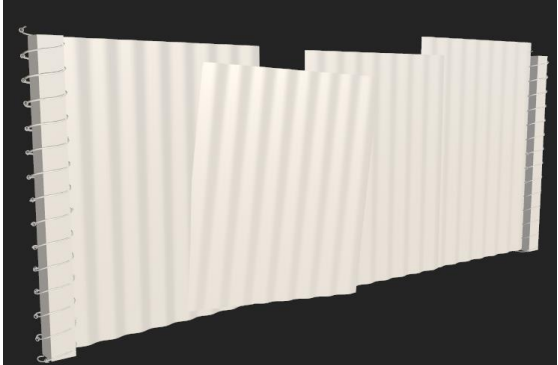
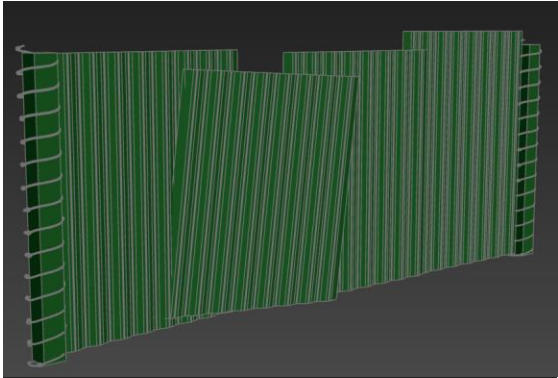
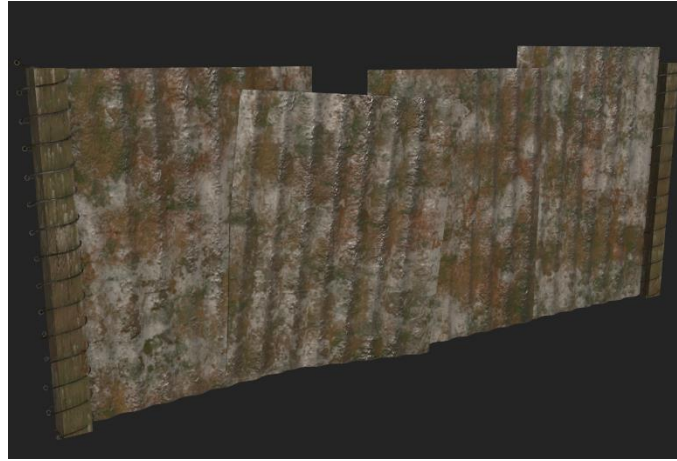
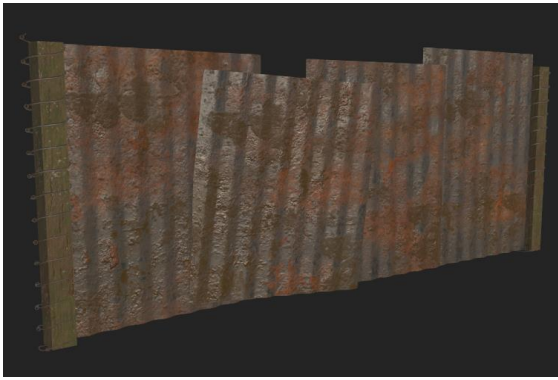
---



There are a lot of pallets spread throughout this environment, so I have created these next, I have re-used my wood smart material as it has suitable damage and grunge for wood that has been walked all over.



# ASSET CREATION: TRENCH WALL



I have struggled a little with making these trench walls look realistic and fit in with the rest of the scene. Looking at reference images there is lots of grunge and mud nearly covering the metal, I have tried to replicate this, but it looks very spotty.

# ASSET CREATION: TABEL

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Using the smart material I have textured some more of my assets, as I was struggling to make them sit into the environment, I have imported my mud texture and using a grunge map added this mud to the bottom of the assets so they can sit in to the landscape material nicely.



Using my own smart materials has allowed for great amount of consistency throughout my assets helping to make them sit together.

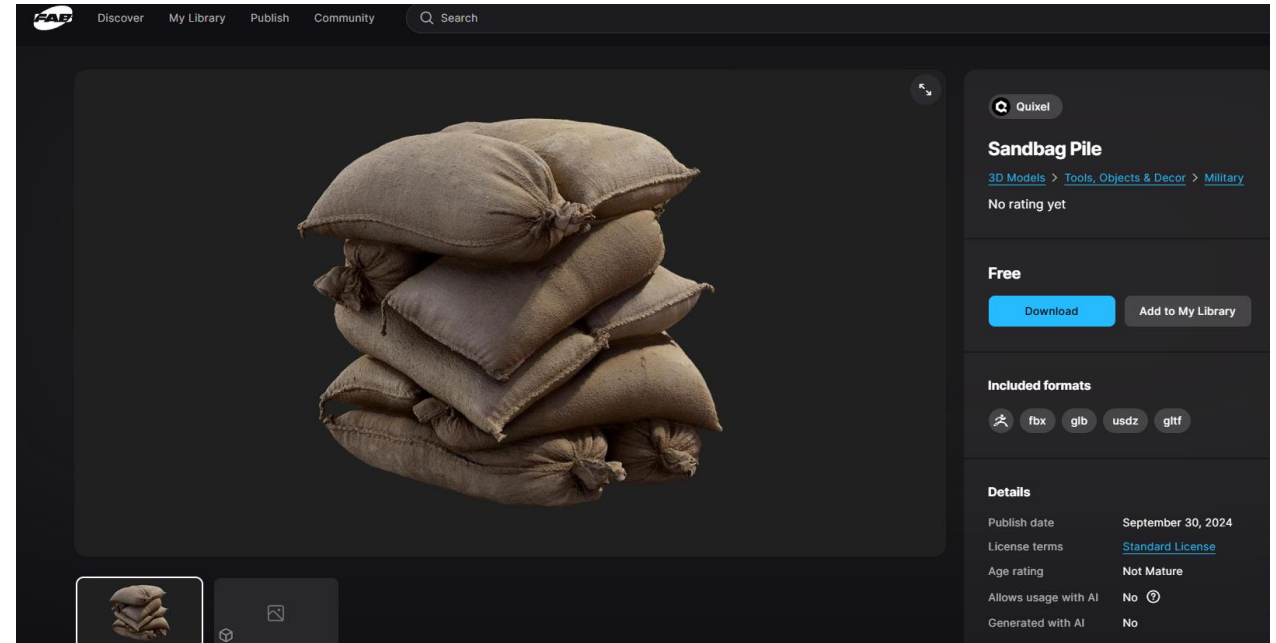
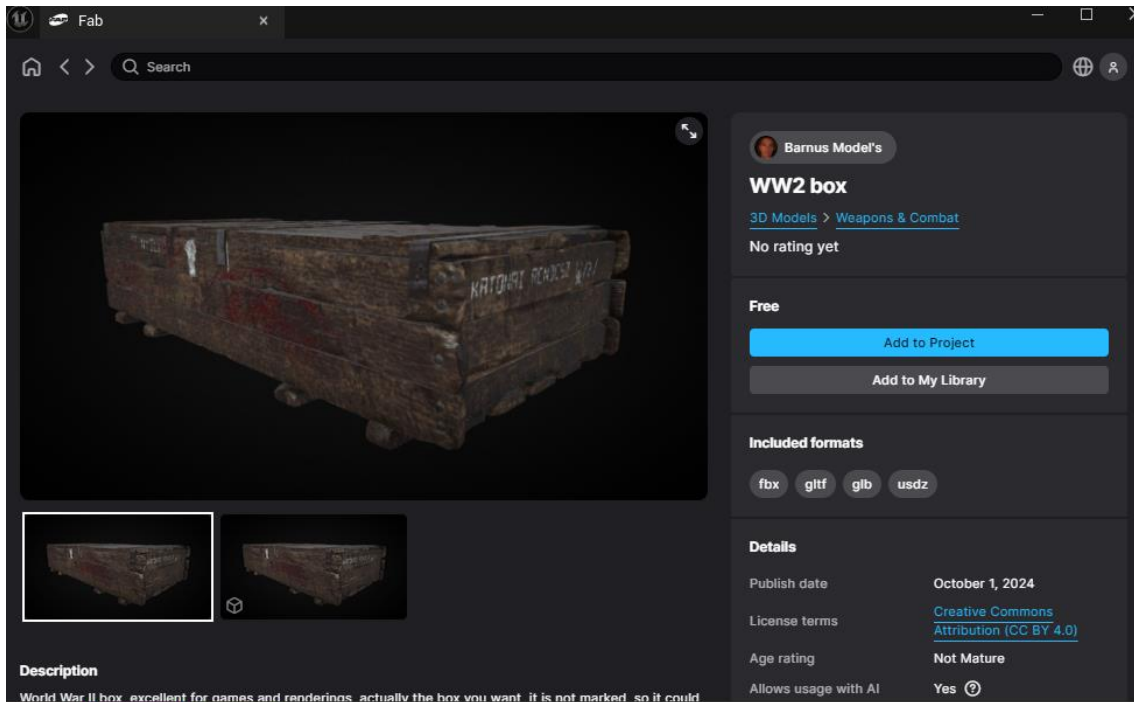
By adding the extra assets, it has helped to fill the scene causing more natural chaos stopping it looking so artificial.



# MEGA SCAN ASSETS:

<https://www.fab.com/listings/c1fd76e8-5bb7-4dff-b1d5-10bb8ff41308>

I have used this mega scan asset to fill the trenches as the boxes would have been used to store and carry weapons and equipment.

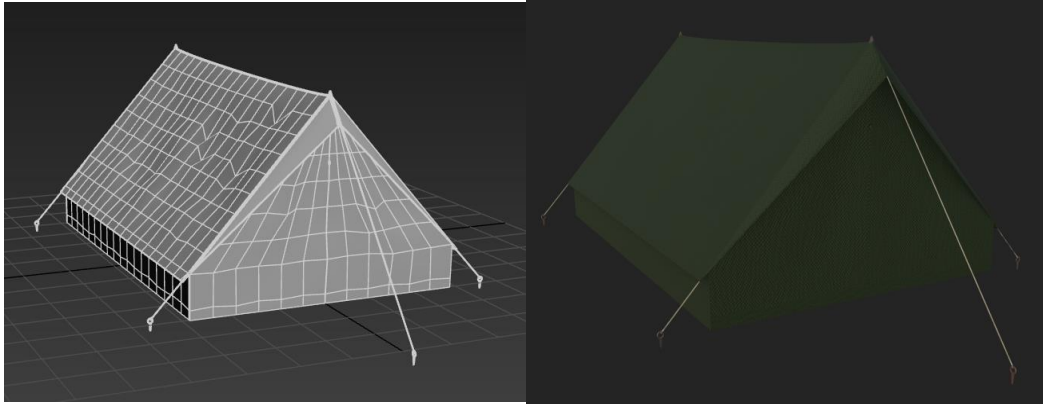


<https://fab.com/s/c01fee50dd2e>

I have used this mega scan asset to build up some sandbag walls throughout the scene to add some cover and defensive position that the soldiers would have used

# ASSET CREATION: TENTS

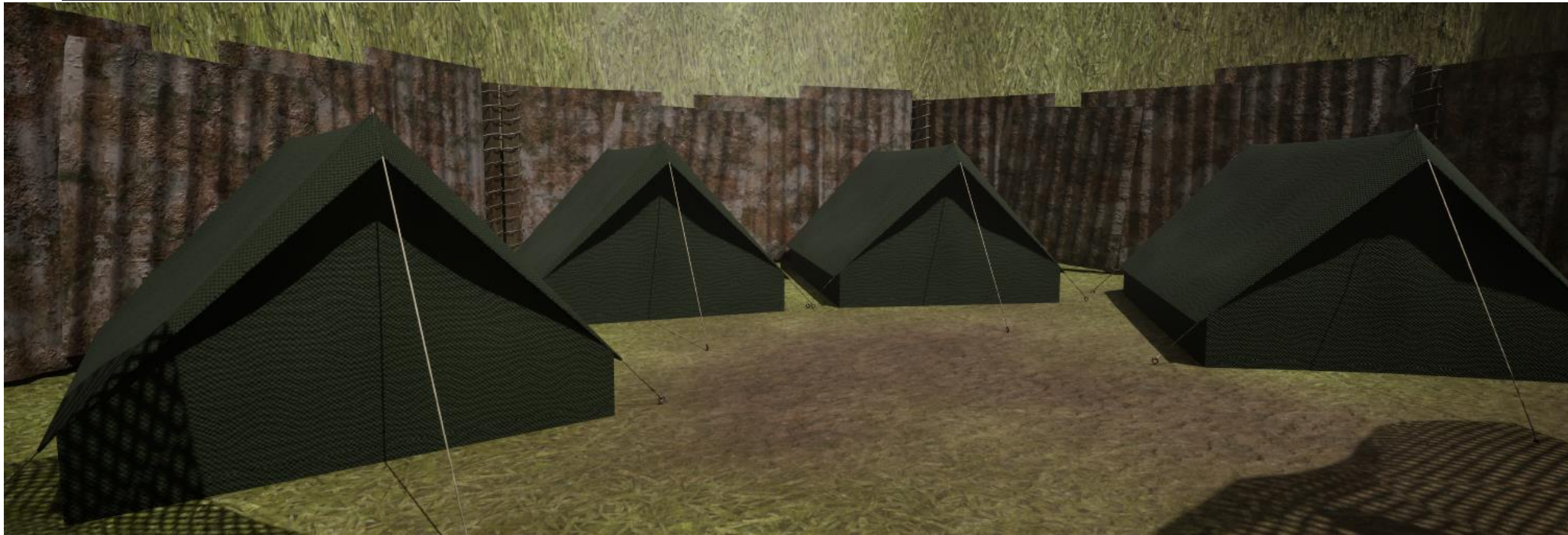
---



After re-modeling, my tents I have unwrapped them and taken them into painter and applied my tent material that is also on the canopy.

After this I applied my smart materials for the metal before reimporting them back into unreal.

The result of this looks much better than before however they still don't sit into the environment as well as I would like, the ground is to flat and there is to much empty space.





# HERO SHOTS:

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I still need one more shot, ideally one with a close up of the bunker as this is my hero assets that the brief asked for. I am struggling to find a suitable shot at the moment as everything looks to empty and barren, I may have to remodel parts of the landscape to hide some of the background hills.

I have begun to experiment with different hero shots as the brief requires multiple. So far I think these two shots work quite nicely as both have the bunker in the background. I am trying to find a shot that has good balance between highlighting the focal point of the bunker and showing of the assets I have created in the foreground.



# ASSET CREATION: AMMO BOX

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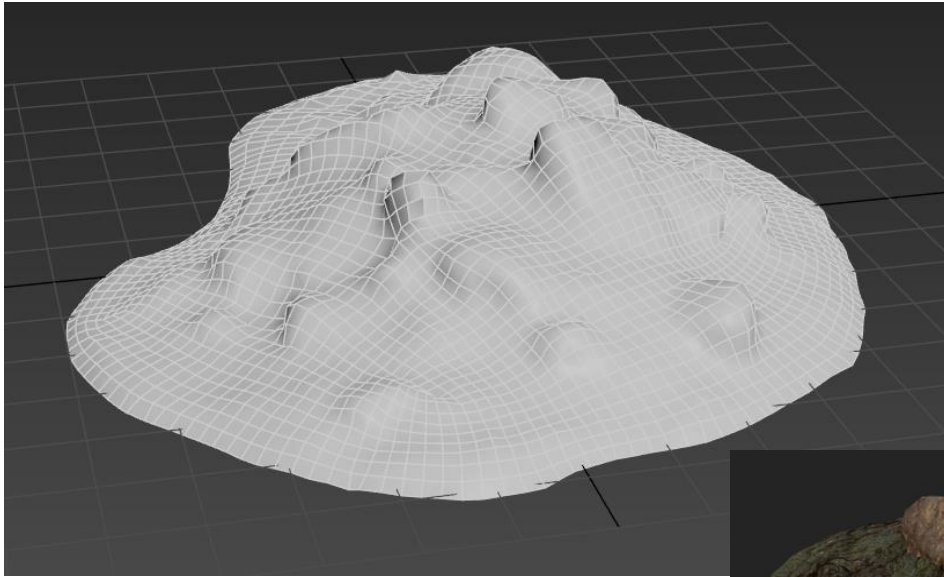
It is hard to see some of the grunge and damage inside of unreal, I think this is due to the lighting more than the texturing. I may end up going back and re-texturing this ammo box.

The last asset in my asset list was this ammo box that I have modeled and textured to fill some of the space in the trenches and camps. I have added some dirt to it however not much damage due to the fact they wouldn't get much wear and tear to them. I debated what language to do the text in but have decided to go with English due to the allied forces using different guns. They would have disposed of the Germans weapons and their ammo would not be compatible.





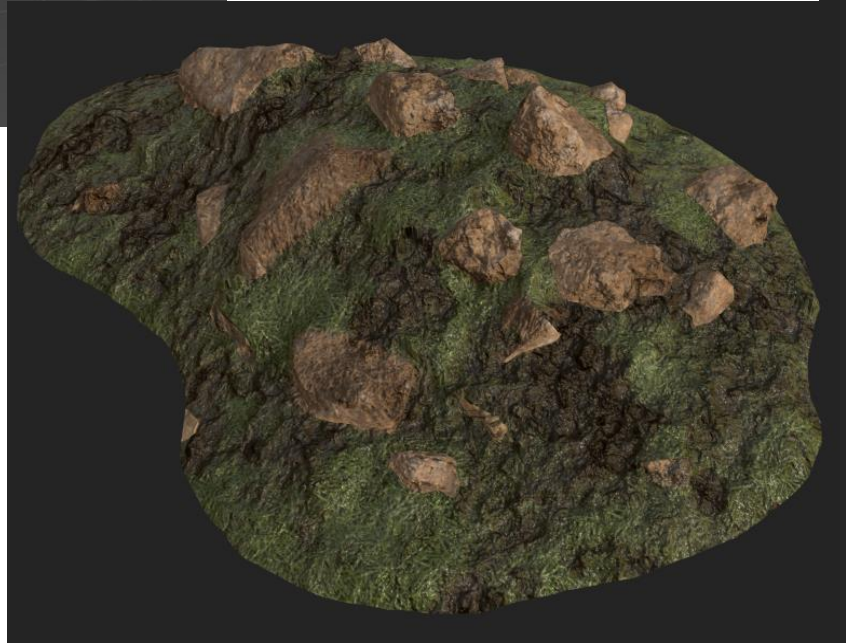
# ASSET CREATION: STONE PILES



My environment still looks very empty so I have made some sand mounds with rocks to try and add another level of detail to the beach.



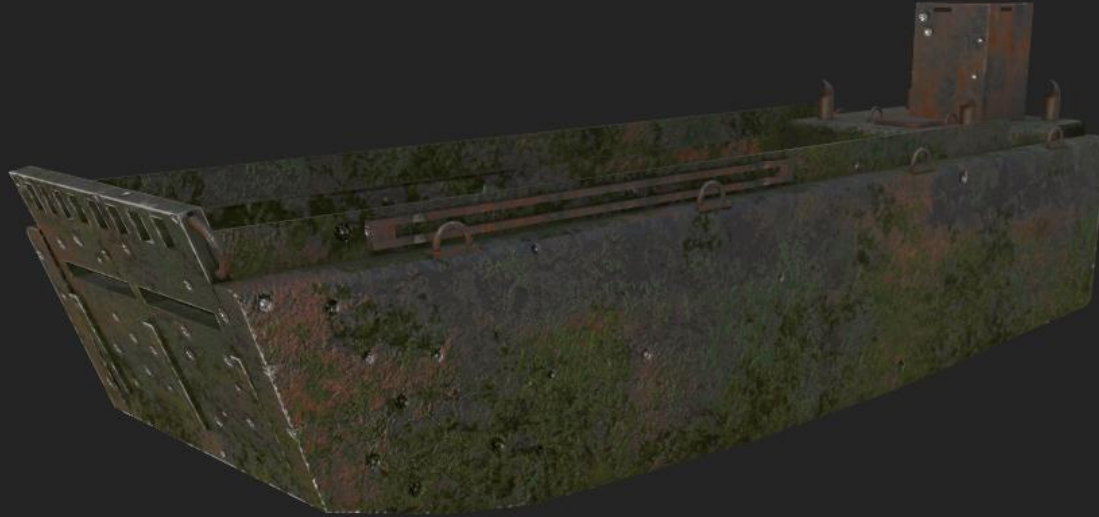
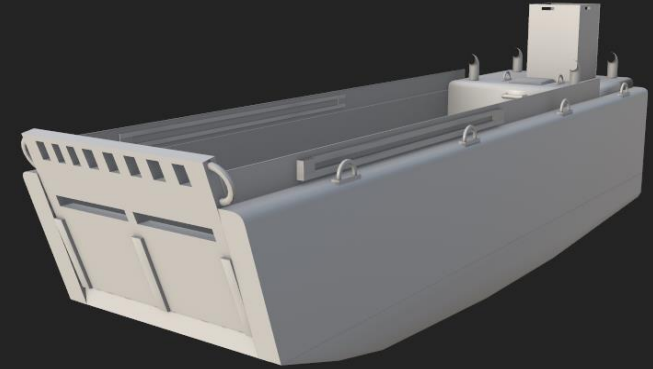
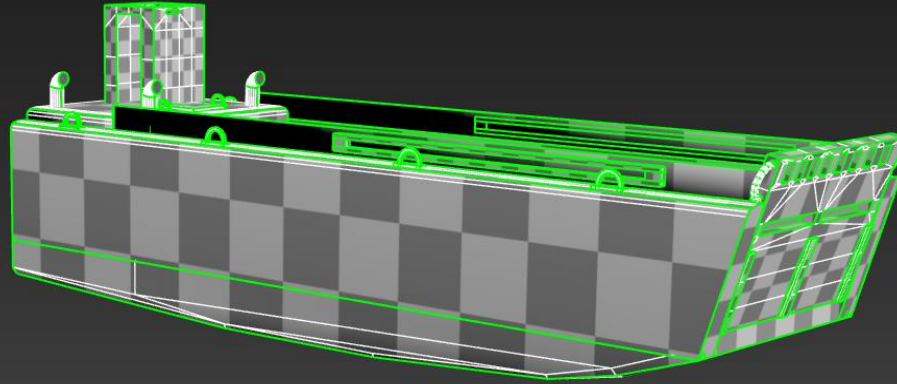
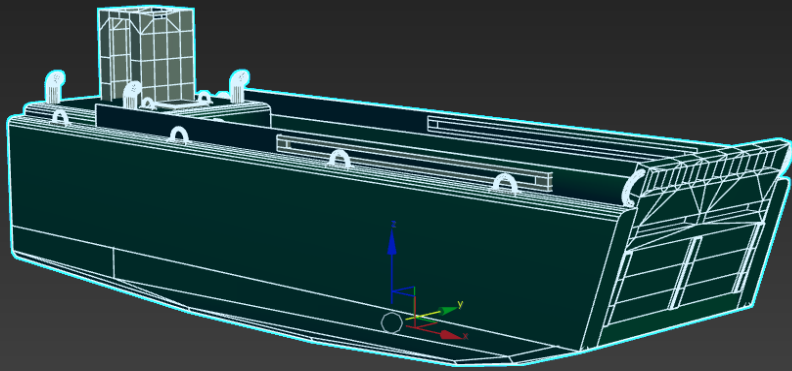
Using soft selection I have been able to lift some polygons out of the mound to look like rocks. This rubble is going to help add to the chaos of the landscape as it is currently very flat with just the material applied. It will also allow me to add some narrative to the scene with explosions and the dug up trenches.



Using my landscape materials from designer I have made a mound that will easily merge into the landscape with a virtual landscape layer blend.

# ASSET CREATION – HIGGINS BOAT

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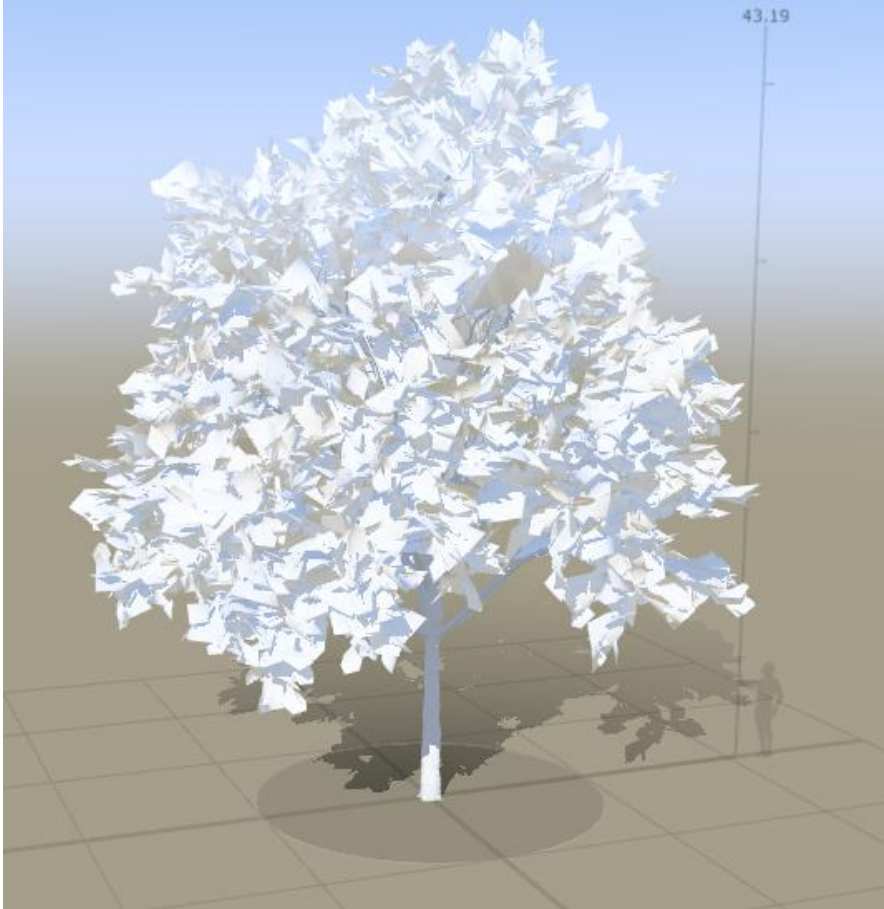
The Higgins boats were used for the landings, and some would have been left behind or damaged during the landing – due to this I have made my own and am going to scatter them along the beach to show how the soldiers made it onto the beach.



# ASSET CREATION: OAK TREE

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It was hard to get a good idea of the final scene with the blockout trees still in the scene: Using speed tree I have created an oak tree and used the texture inside of speed tree to texture it.



I plan to PCG the trees into the scene to save myself some time, I will be able to have a random scale to create some variation throughout the trees.

Textures are not my own, they were in the speed tree library:



# IMPLEMENTING INTO ENGINE:

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I am really happy with how my assets are looking in unreal, the use of the smart materials really helps bring them all together, I still need to use a virtual texture landscape blend to help them sit into the scene a little better.

They still feel a little separate from each other at the moment, I am going to play around with some volumetric fog and see if adding this can add another layer of detail to the scene without losing all of the detail.





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# PROGRESS:





# CURRENT PROBLEMS:

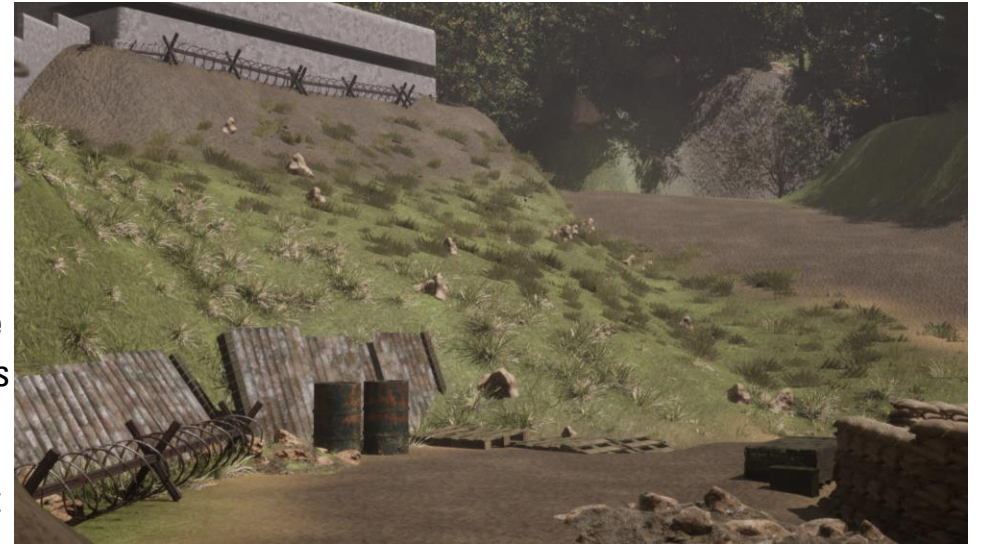
---

As I progress through this project there are a couple problems that I am having to overcome, I have got my scale slightly wrong for the overall size of the environment meaning I have a lot of space to fill.

This is going to cause a problem when I do the walkthroughs and there is an inconsistency in the detail throughout the scene.

Another problem is with my water, due to how the Unreal water systems work when I change PC, the water colour keeps changing back to a light blue which is something I keep needing to rechange. It is also invisible when I reload the project, I have to move the water for it to spawn in.

To get around this I am going to try and make my own water material that can be saved in the project files.







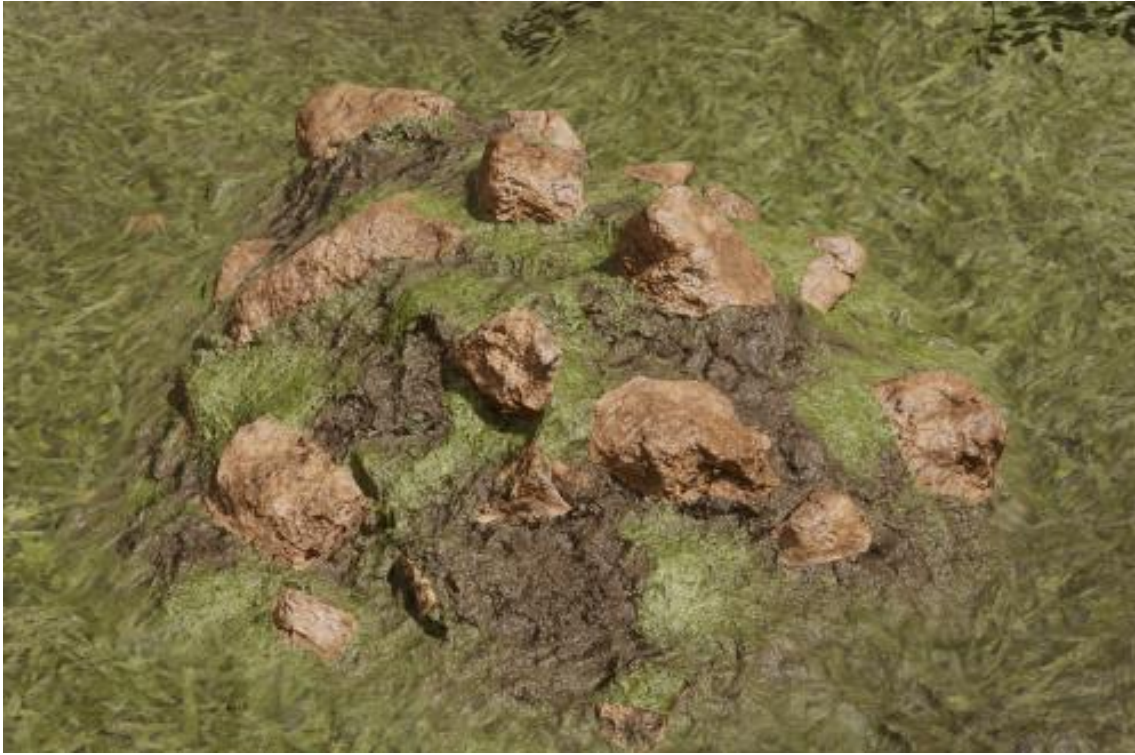




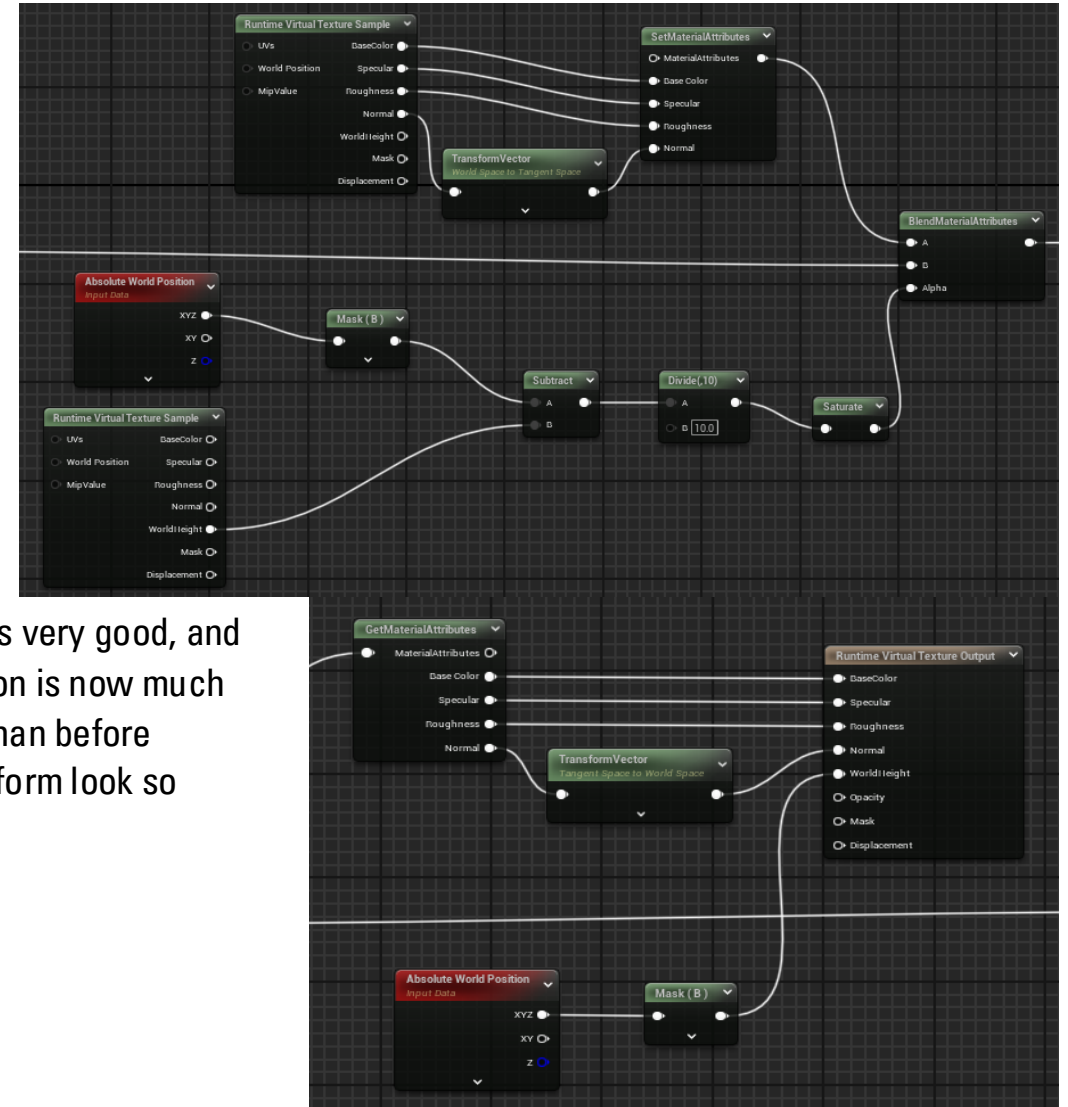


# RUNTIME VIRTUAL LANDSCAPE BLEND:

I was not happy with how my assets were sitting in the environment, there was a sharp line where they met, to get around this I have used a runtime virtual landscape layer blend to blend the landscape material over the bottom of the assets.

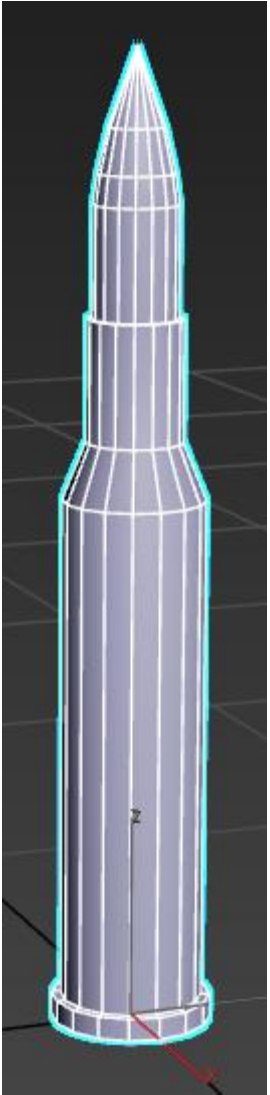


The result is very good, and the transition is now much smoother than before stopping it from look so unnatural.



# ASSET CREATION – BULLETS:

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A lot of the smaller detail is missing from the scene that would greatly help with the story telling. The environment is too clean for a post battle scene. To try and get around this I have made some bullets that I can spread all over the environment.



Using the foliage painting tool I have added bullets throughout the scene, making sure to add extra around fortified areas where the soldiers would be most likely to be.



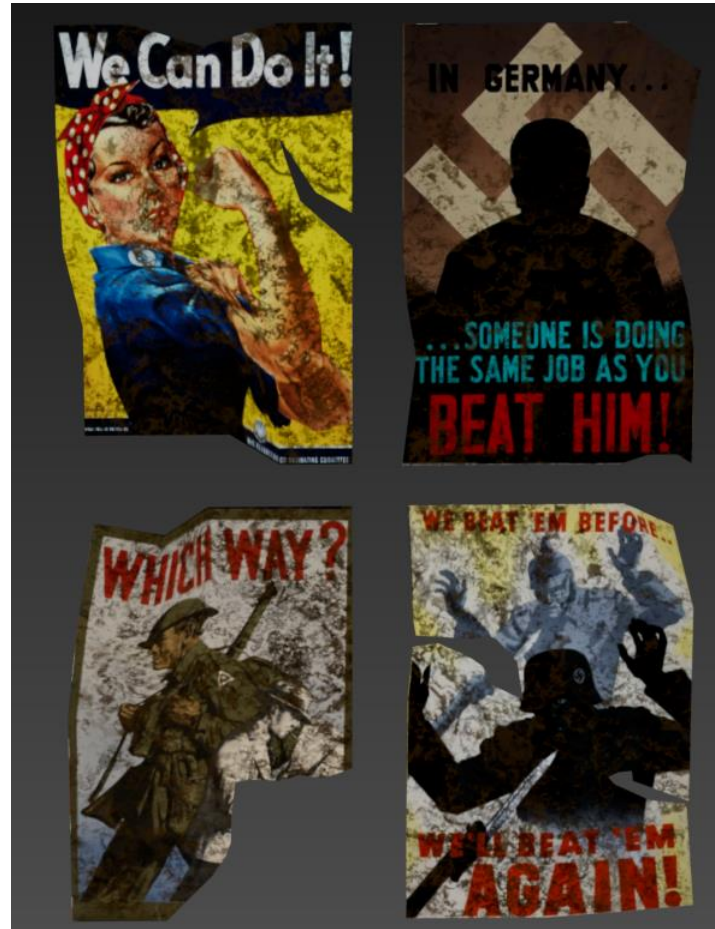
# TRIM SHEETS:

I struggled originally to get trim sheets into my scene as my main focal point of the bunker has no trim damage on it. In the end I have added a trim sheets for the posters that have been put up after the battle.

Painter:



3Ds Max:



In Unreal:

The Posters add an extra layer of detail which helps add some realism to the environment. It helps with the story telling as they would be scattered around to help boost the moral after a battle.



# MEGASCAN ASSET USED:

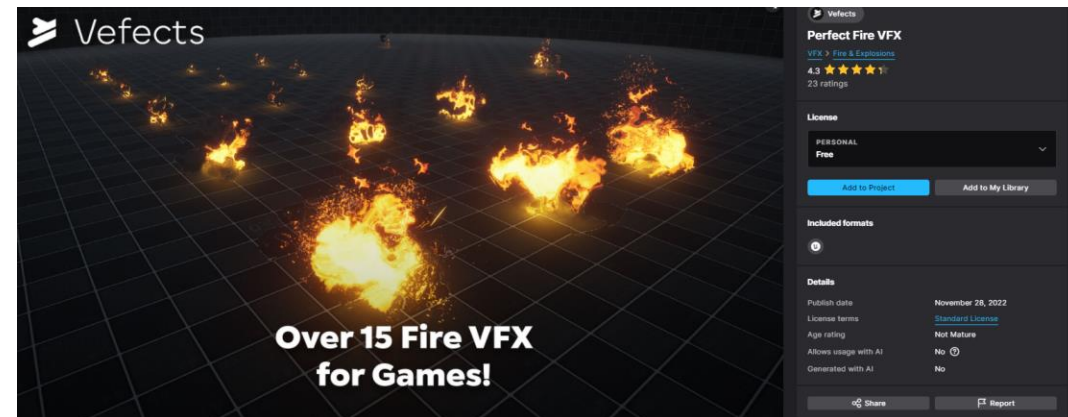
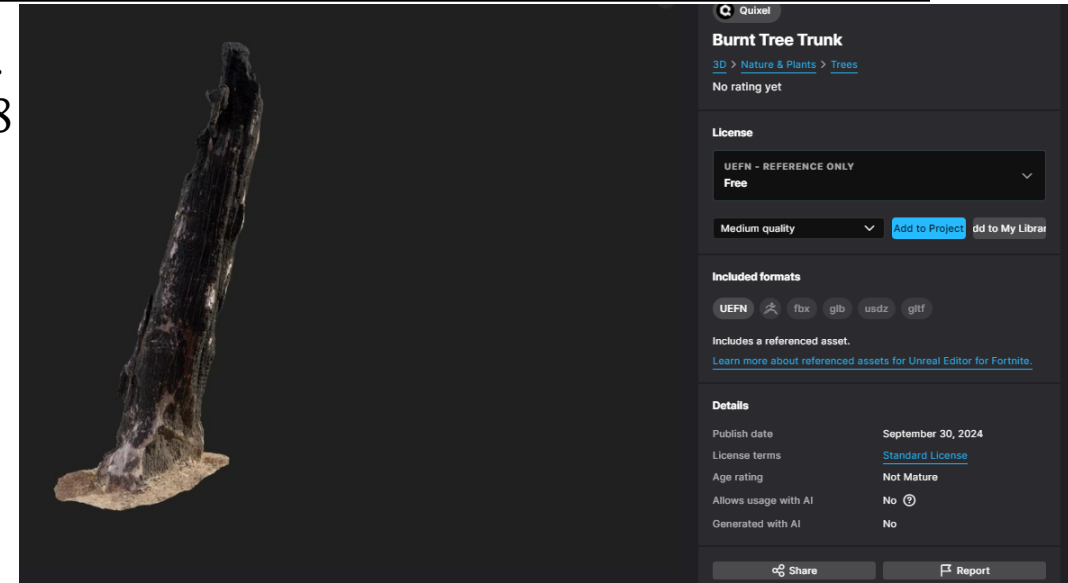


<https://fab.com/s/fca82bf24aed>

<https://fab.com/s/5fd269a3b9fb>



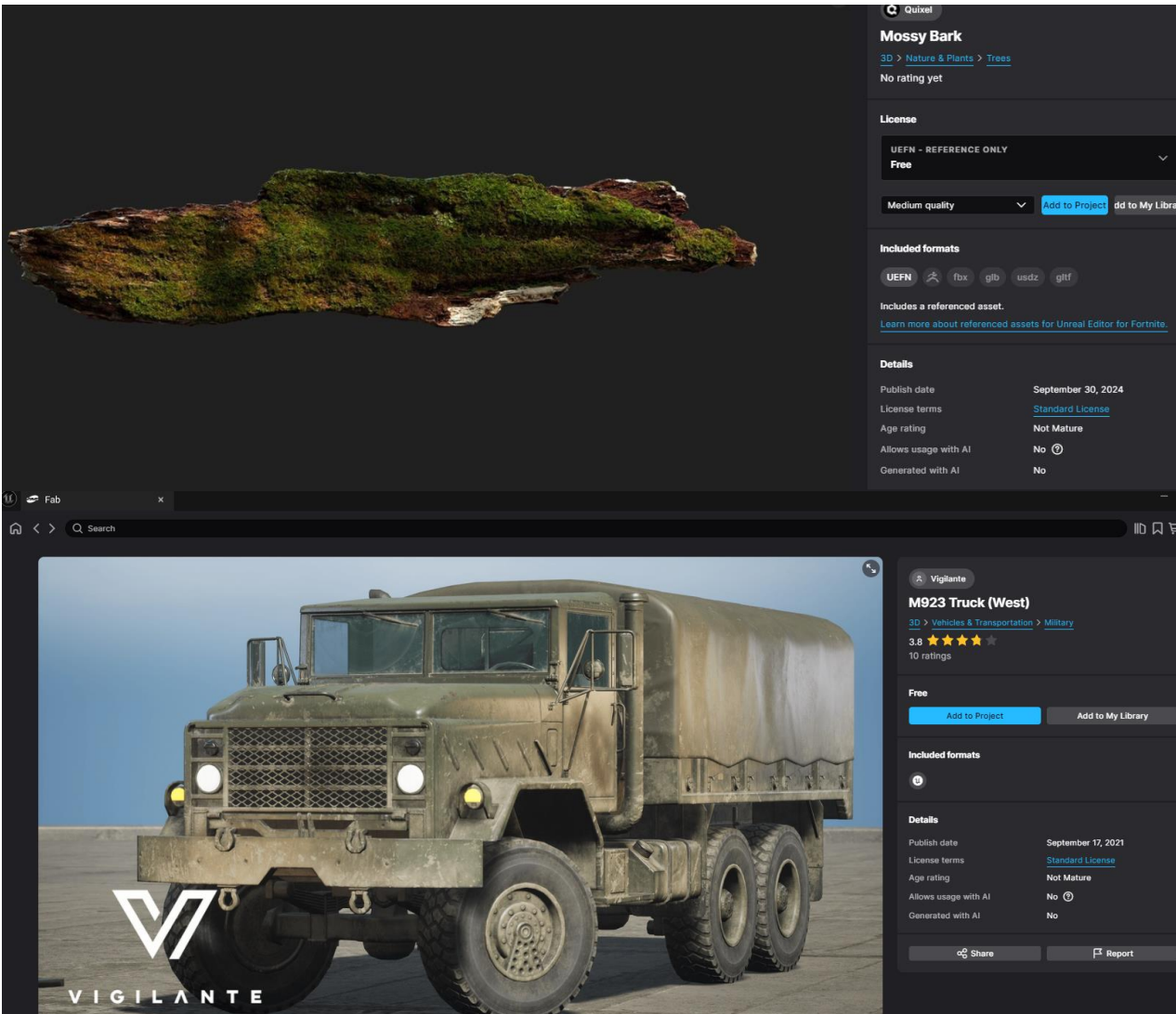
<https://fab.com/s/cc05b12fbd65>



Used for the inside of the gas lamps.



# MEGASCAN ASSET USED:



<https://fab.com/s/96b12ee2f7c9>

More damaged foliage due to gun fire, explosions and battle damage. Spread up the hill side to help show where the vegaaton would have been growing before the battle.

<https://fab.com/s/b63c642c0b9c>

I have used the truck Mega scan, to add some life to the scene, before it looked very barren and there was no evidence of soldiers being present.

The trucks brake lights are on so I have positioned the trucks with the lights showing to give the player a pathway to follow.















# LIGHTING - HDRI

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After speaking with Human, he explained how using an overcast HDRI could greatly help benefit the scene.

The HDRI helps with some bounce lighting, stopping the shadow being so overpowering.

The HDRI is also adds some more realistic clouds that can replace my BP\_Sky\_Sphere.



I need to play around with my post process volume to try and get the exposure correct as it is underexposed at the moment. As it is an overcast day there would barley be any shadows.

One thing I am struggling with at the moment is keeping the clouds visible in my shot as soon as I increase the directional light they get washed out. I have played around with the saturation in the post process volume but had no success yet.



# FEEDBACK FROM EXPRESSION GAMES – TOM + JACK

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After speaking to Tom from Expressions Games, he gave some great feedback about the composition of my shot. For this shot he mentioned moving the path so that it sweeps around the corner, adding some more detail on the far-right bank, and playing with some lights and the trucks.

The straight lines on the bunker should be adjusted as they are too straight, need something to break them up, gun barrel? Something hanging down, decals or normal damage.

It's good to keep the rest space on the bank, don't add anymore assets or detail to it.

The bunker also needed some work with the texture, they mentioned using vertex paint to add some more variation with a different amount of normal detail. The decals I plan to use will also greatly improve the look by breaking it up more.



# FEEDBACK FROM EXPRESSION GAMES – TOM + JACK

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It would help if the background wasn't as clear, he suggested either increasing the fog intensity or adjusting the camera settings so that it is blurry.

The ammo boxes in the foreground were mentioned as being very nice so I may look to replicate something similar in my other shots.

The bunker in the background could do with some decals but they don't need to be detailed.

Fill the trench with a couple more assets, make it busy but the assets need to look like they belong.



# CONCRETE DECALS:

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The decals look very overpowering at the moment but when I put the fog back in the they are washed out giving a nice result.



This is a before and after of the decals, I have taken two decals from Quixel Bridge and then replaced the base colour map with my own. I have also added a vector 3 with a multiply node to adjust the colour even more to create more variation.

These decals add an extra layer of detail to the texture helping to make it pop, I have struggled with trying to vertex paint some more normal damage onto the model tho, I planned to have some major damaged mixed in with the current decals.



# ASSET CREATION: HELMET

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I still need to fill the trenches with more assets, I decided to go for a soldier's helmet, as it has been shot it has lost its structural integrity, so they have left it behind.

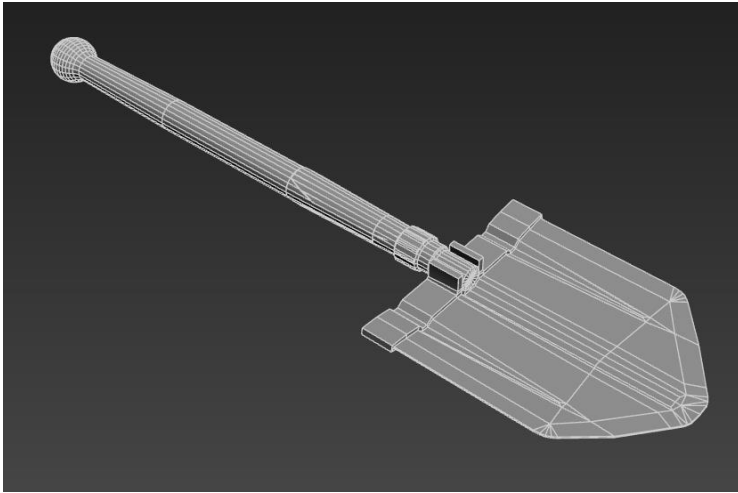
I have added a range of damaged with scratches and bullet holes as well as layering some dirt and scratched paint over the top.

I struggled a little with how much damage to add to these helmets, as it would not make sense if they pristine conditioned ones behind however I didn't want to just ruin the helmets as they wouldn't have moved them into the trenches.

When it came to composition, I tried to keep them in pairs as this helps balance the shot a little better.

# ASSET CREATION: SHOVEL

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My next trench asset was a trench shovel, these would have been very common, and most soldiers would have one in their pack. It would make sense that some were left behind to maintain the trenches.

I was able to use my metal smart material again to speed up the texturing process and keep consistency of my metal assets throughout.



# VOLUMETRIC FOG:

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I have added in a few different fog volumes, with different material instances applied to get varying levels of fog depending on the distance from the camera.

This has allowed me extra control of how foggy I want the background compared to the volumes in the foreground



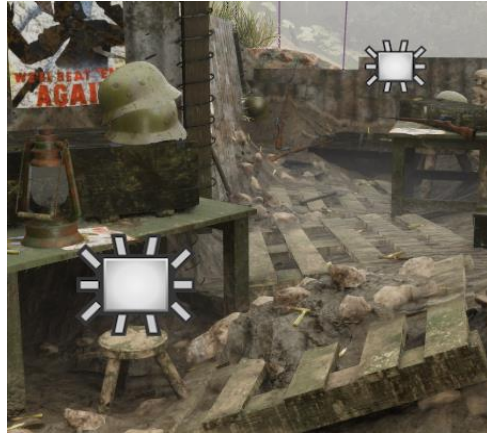
After experimenting with these fog volumes, I have adjusted the opacity to exaggerate the ones by the truck causing the trucks headlights to light them up as if they are high beams and to fake the fumes coming out of the exhaust.

The result of this is very effective and adds extra depth into my environment helping with the composition.

# FAKE LIGHTING:

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I have also added two low intensity Rect lights into the trench to help lighten some of the space under the tables.



Originally, I was told that the trucks were too dark and I should use some Rect lights to help lift them out of the background.



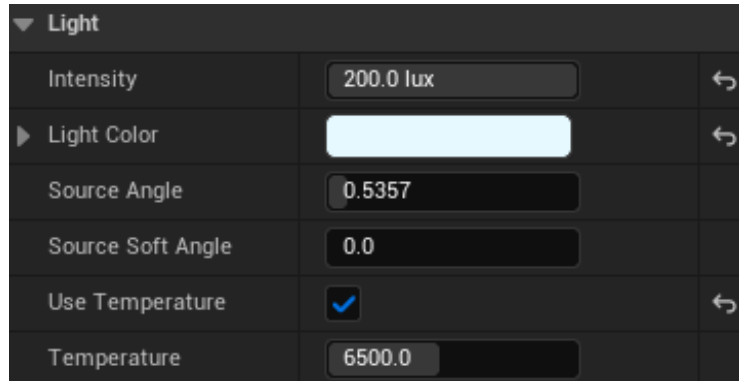
I have made it look like the lights are on, which makes sense in this overcast environment. This also allows me to light up some of the fog in front of the cars and the smoke coming out of the exhaust.



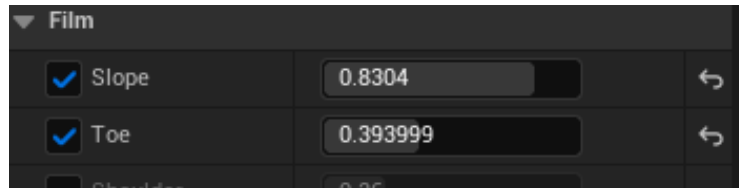
As I have some trucks in the scene I am going to try and fake some lighting to help highlight the focal point of the bunker.



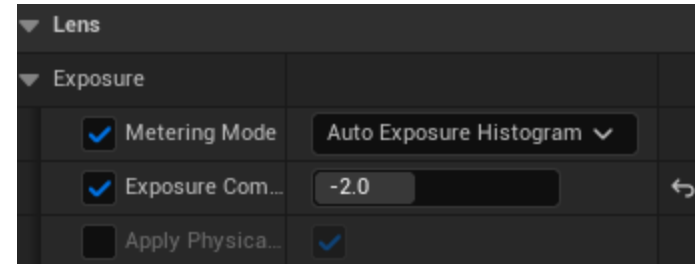
# POST PROCESS VOLUME:



My post process volume has worked wonders when it came to lighting the scene, after doing some research and talking to Mike he mention that the intensity of the directional light needs to be higher around 200.0 lux for an overcast scene.

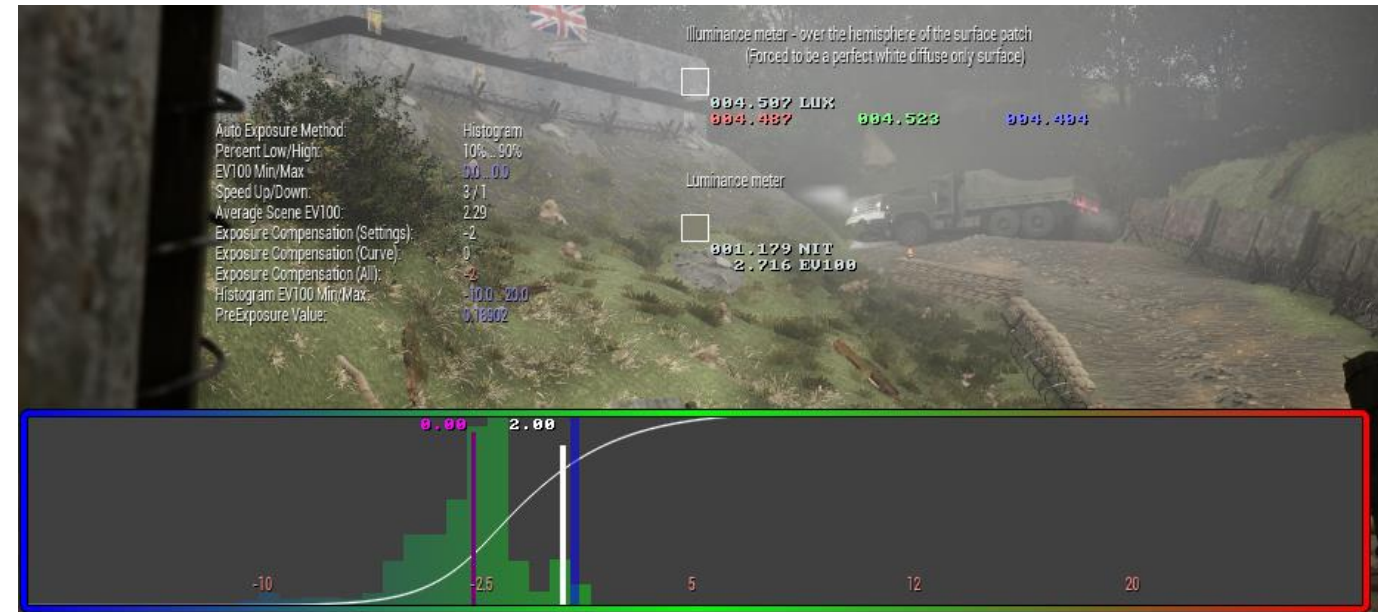


Another adjustment I made, was with the Slope and the Toe. I adjusted the slope down to add to the mist and the toe down to exaggerate the fog and wash out everything a little more.



Due to the intensity of the directional light, I need to tone down the exposure using the post process volume. I did this in the exposure settings turning down the 'Exposure Compensation' to -2.

After this I used the HDR eye adapter to check the exposure before moving on, the histogram was very useful and allowed me to adjust the exposure to get an accurate result for the overcast environment.



# STORY TELLING:

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As the narrative is a major focus in this brief I have added lots of little details throughout the scene to add a base storyline.



A couple problems I have faced with the story telling is the lack of damage, I struggled to get a balance of battle worn and peaceful as the scene is set a week after the battle.

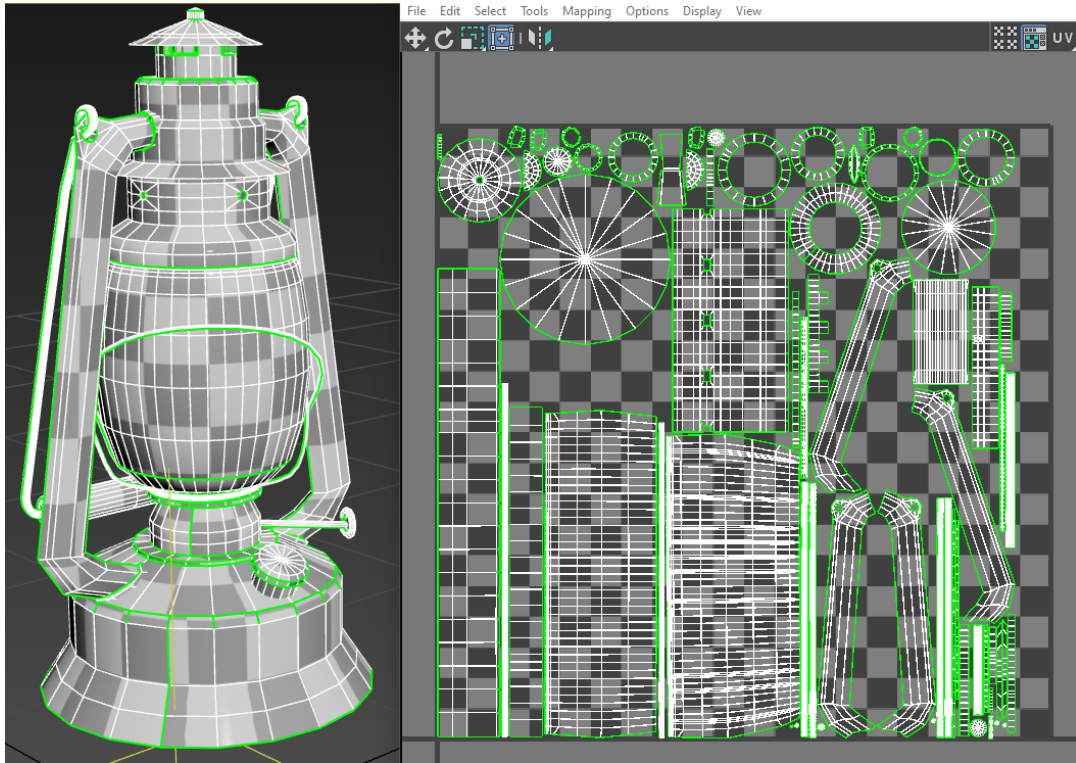
The leftover equipment as if the soldiers have moved on quickly only leaving the bare minimum behind, a small camp for where the wounded can be treated.

I have added some extra detail onto the mud track, placing the mounds of rubble on the outside and straight up the middle of the pathway as if the path has been dug out and the dirt thrown to the side. Also the trucks moving up the track have pushed excess dirt to the middle.





# ASSET CREATION: GAS LAMP



As it is an overcast day, it makes sense for there to be some lighting in the trenches, during the War gas lamps were often used by both sides so I have modeled one of these to help light the trenches.

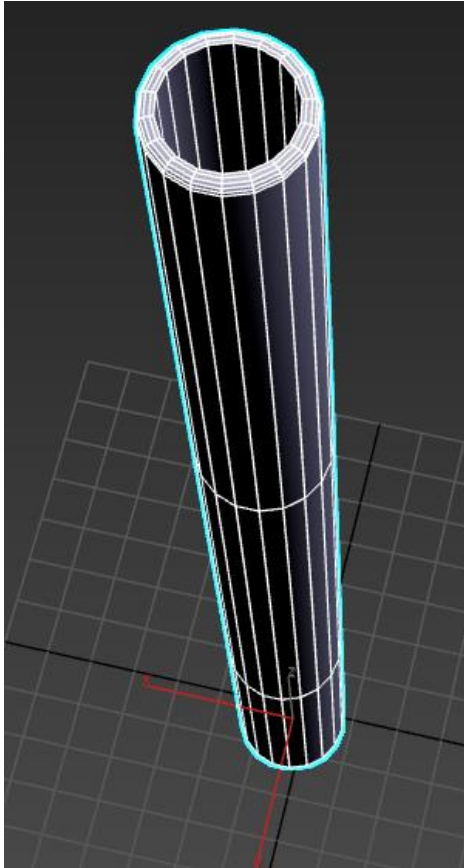


Using an emissive fire material, I found on Quixel Bridge I have applied it to a cylinder inside of the lamps to act as live flames as the lamp looked very empty originally. The result of this is very nice and I can use it to help lead the viewers attention around my shots.

# ASSET CREATION: BUNKER GUN BARREL

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Some of the feedback I received was that I need to break up the straight lines of the bunker, and it was recommended that I have a gun barrel pointing out.



This gun barrel is very simple but very effective, due to the fog and the low lighting inside of the bunker you can only see the barrel poking out from my camera angles.



The result of this is great and helps to break up the otherwise straight and empty space in the bunker windows.



# LIGHTING:

I have used the lamps to help reinforce the viewers line of sight, using the pathway and leading lines form the sandbags and barbed wire to lope back round to the focal point of the bunker

The scene is to overexposed to see this clearly so I am going to experiment with a night time scene as well.



# LIGHTING EXPERIMENTATION:

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I have experimented with changing my lighting set up to a nighttime scene to see how my storytelling and assets can hold up in low light. If my scene is still clear and understandable in this lighting it is composed well

The result for this shot is making it look underexposed, the and looks to bright compared to the rest of the environment, however it makes the water and the mid – background look quite nice





# LIGHTING EXPERIMENTATION:

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This trench shot looks really nice with night-time lighting, the gas lamps help to highlight different parts of the foreground, changing the original focal point to a more interesting shot.

Lots of detail is being lost for some of the models however the is expected under the current lighting set up, it's nice to see that the roughness value is still helping reflect light along the barrels and ammo box's



# LIGHTING EXPERIMENTATION:

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The last shot also looks quite nice, though I think it could be improved if it wasn't quite as underexposed, lots of the detail is being hidden, especially on the hill side.

The truck lights are exaggerated and the high beams lighting up the side of the bunker looks really nice.





# LIGHTING EXPERIMENTATION:

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I liked how this shot was looking originally and wanted to take it to the next level, the shot was struggling as there wasn't enough light showing of the form of the bunker – it was getting lost in the darkness.

To get around this I have added a point light in the bunker to simulate a gas lamp as if there are soldiers still using it. This really improves the shot and brings the focal point back to the bunker.



# 3RD SHOT:

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I still wasn't happy with my first shot so I have changed it to a 3rd angle of another trench, so that I can use my assets to fill the foreground.

The focal point of this shot is the trench; I wanted to have this different to the other shots which had the bunker in view.

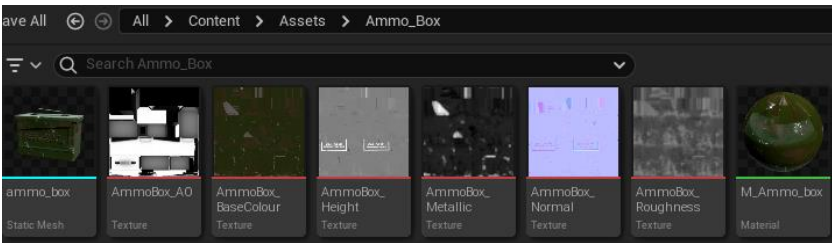
I have adjusted the aperture on the camera so that the foreground is blurry and doesn't take away from the trench the guides the player around the map.





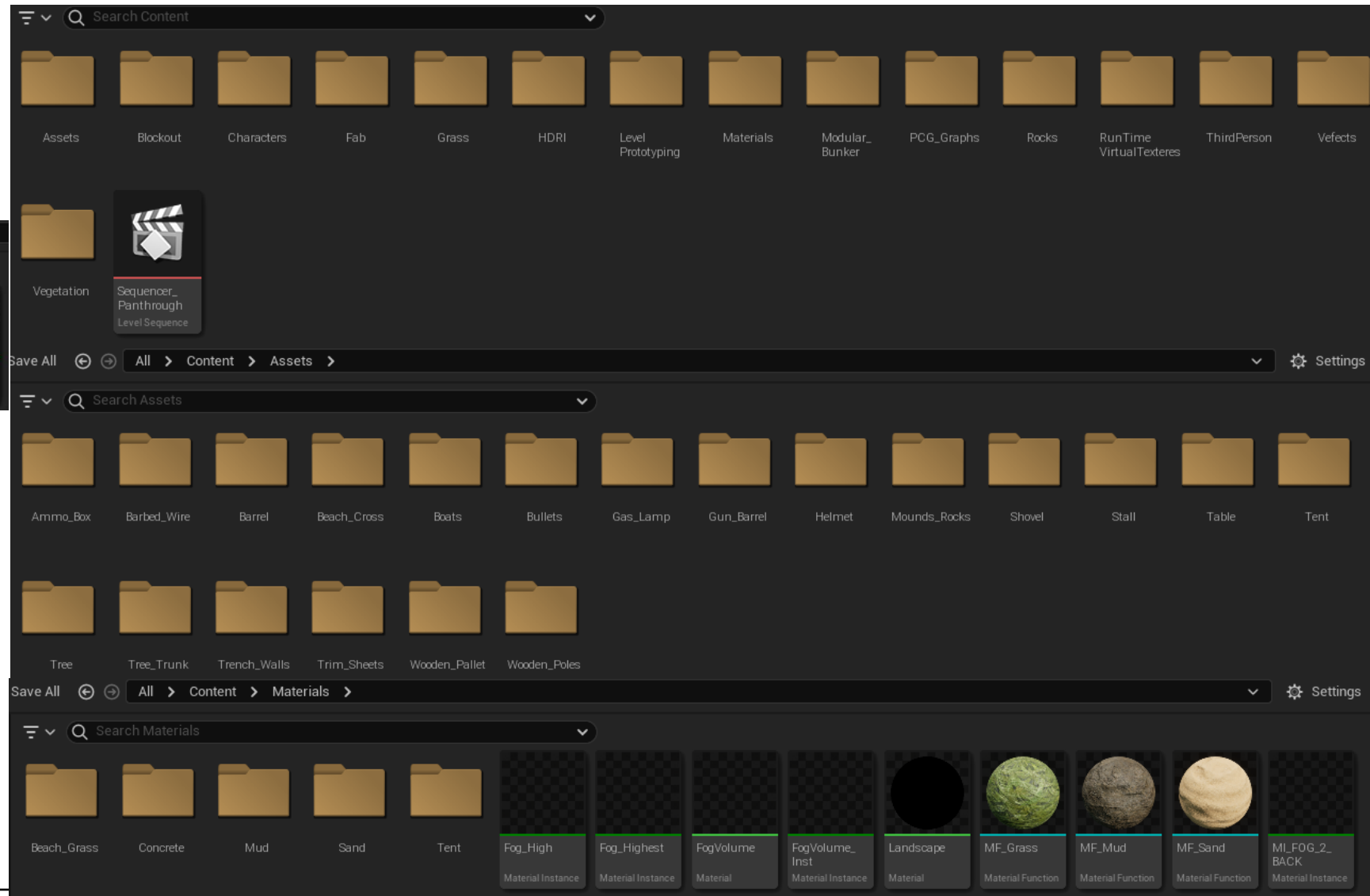
# FOLDER MANAGEMENT:

As I am working with so many different files and textures, I have made sure to keep on top of my folder system, making sure everything is named correctly so that the file is easy to navigate for me and others.



I have all of my textures in file, along with its FBX and the material for each asset so it is easy to set up and find the correct material, equally the materials are all named so you can type in the name, and it will come up.

This process made working with this project much easier and I wasted no time finding anything.



# ASSET ZOO – MY ASSETS:

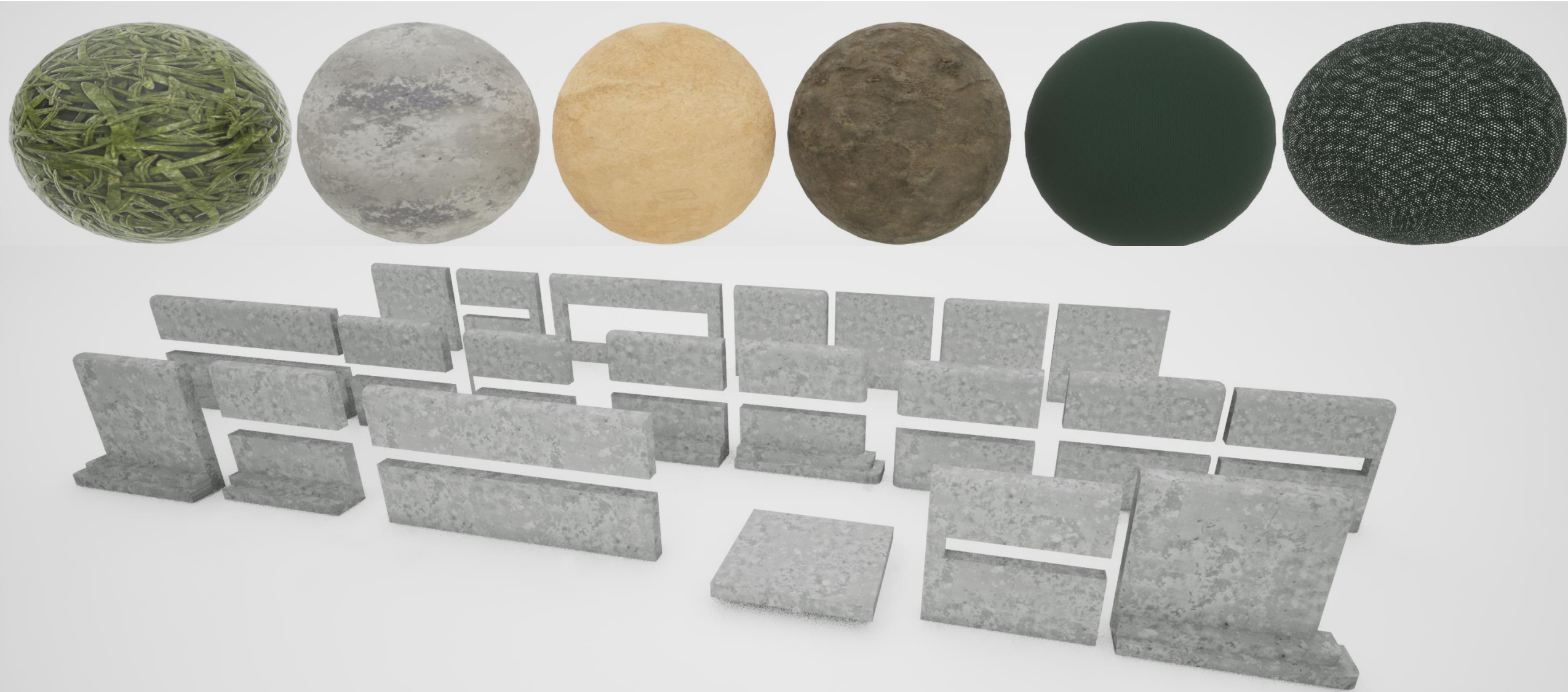
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# ASSET ZOO – MATERIALS + MODULAR BUNKER:

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# ASSET ZOO FOLIAGE + MEGA SCANS:

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The bottom left image is an asset zoo of the Mega Scan assets that I have used and found on FAB, they are not my own.

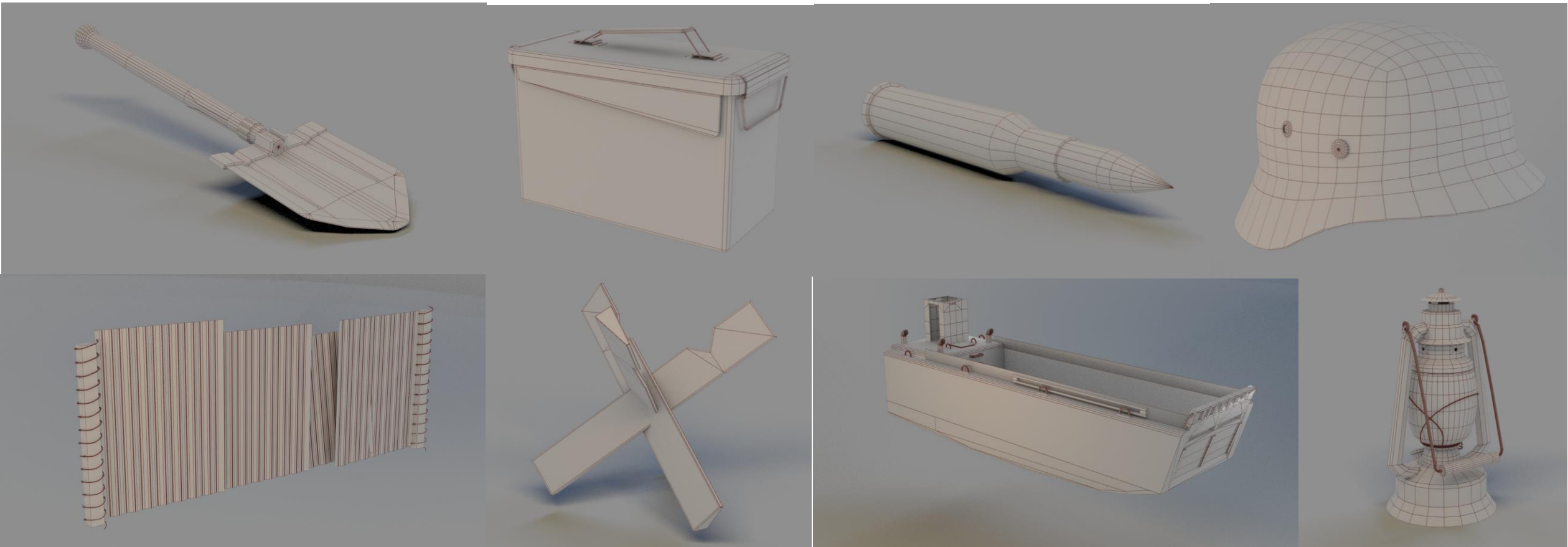


This is an asset zoo of my foliage that is scattered around the environment.



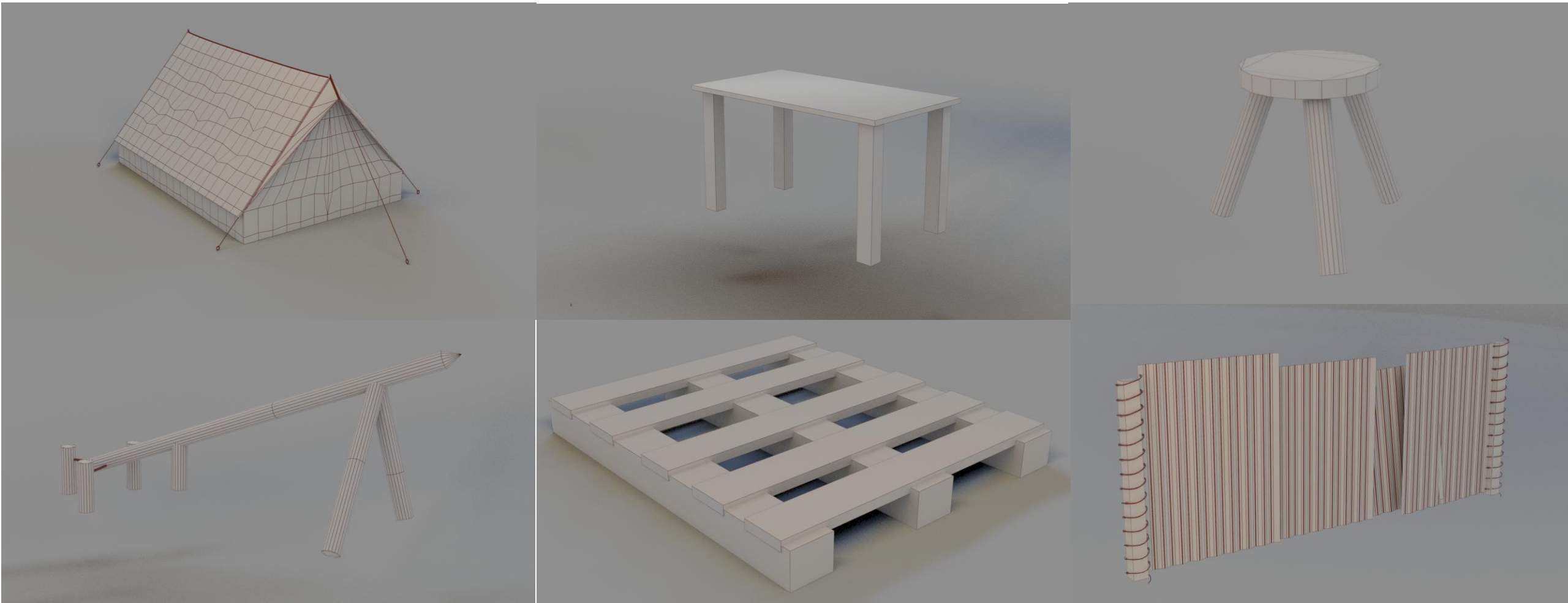
# WIREFRAME RENDERS:

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# WIREFRAME RENDERS:

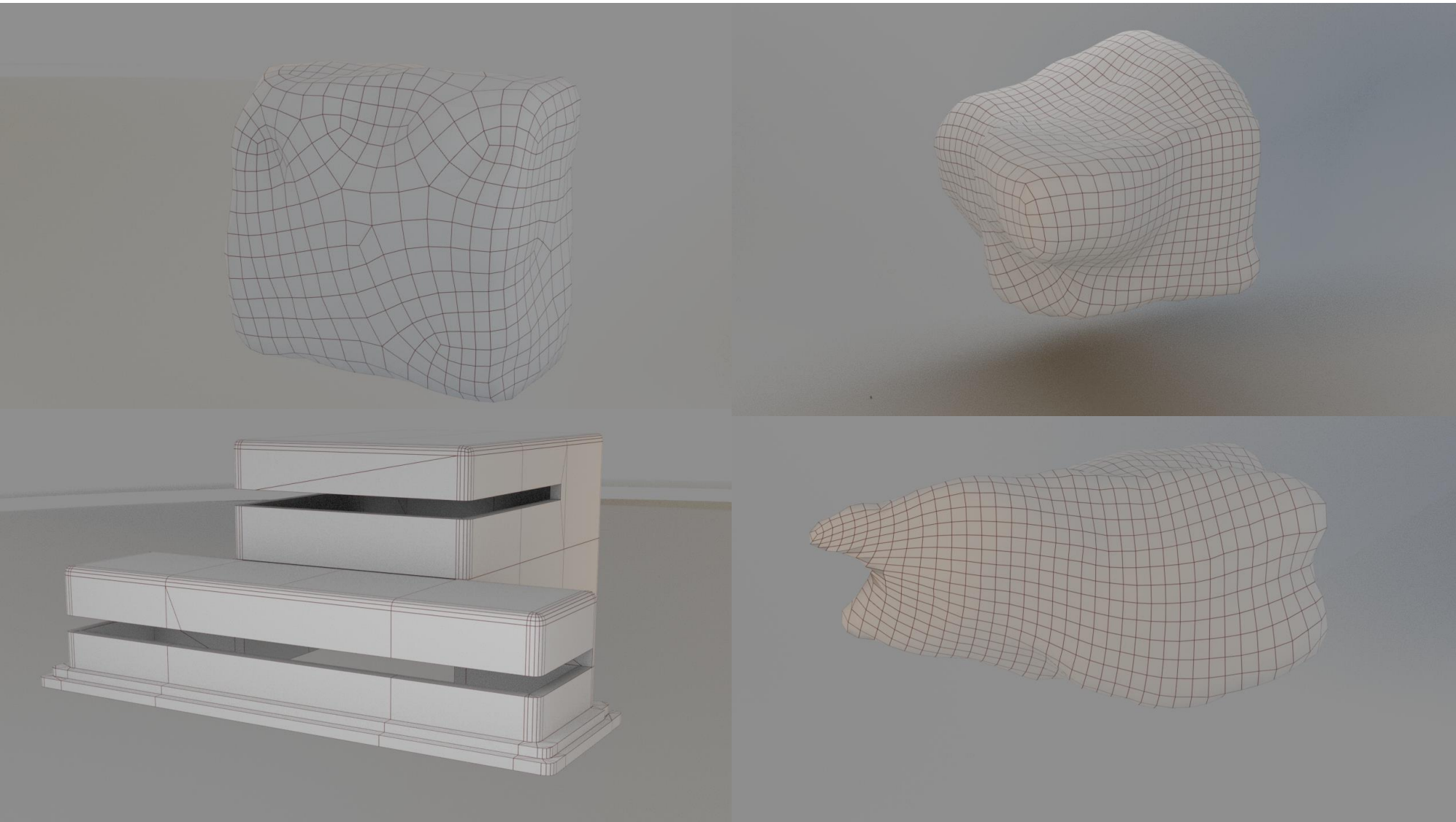
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# WIREFRAME RENDERS:

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These are a collection of my wireframes that I haven't already shown in this art book.

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# FINAL RENDERS:









IN GERMANY...

SOMEONE IS DOING  
THE SAME JOB AS YOU  
BEAT HIM!

WE BEAT 'EM BEFORE...

WE'LL BEAT 'EM  
AGAIN...











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# CRITICAL REFLECTION + CONCLUSION

[Expression Games Brief  
Critical Reflection.docx](#)