

Jake Rowland

Sewage (CS:GO map)

Steam link: <https://steamcommunity.com/sharedfiles/filedetails/?id=2655754974>

Research and inspiration:

- Research:

Research

I have begun this project by first researching how to use Hammer to it's full potential. It's an engine I've never used before and so there is plenty to learn and become acquainted with. There isn't much documentation about the creation of Wingman maps online, however there is loads detailing how a well made Competitive map should be made. This shouldn't be too much of an issue, as I feel the general gameplay between competitive and wingman is similar. The attackers should approach the bomb site a few seconds after the defenders, there should be a few "choke points" in order to create challenge for the attackers, and there should be some verticality to make the map more interesting.

A large amount of CS maps follow the "4 quadrant" style of creation:



This is because it generally leads to a good map balance. The attackers have 2 boxes on their side of the map, and to push into the defenders side they have the cross over the theoretical line, and where the two boxes meet is usual where the choke points lay. This choke point is important for the defenders, because in a usual situation they will be fighting a 2v4 or 5 while they wait for the rest of their team to rotate. In order to add this advantage, they usually have a height advantage, or the attackers have to push through a small walkway, or drop down from a ledge. For my wingman map, I will attempt to make a two quadrant map, due to there only being one bomb site. I'm aiming to have 2 or 3 choke points, and I think it will be a good idea to give the defenders some kind of "heaven" or high area to defend from. I'm also aiming to have the defenders take around 8 seconds to reach the site, and the attackers take about 13, in order to give the defenders enough time to find suitable positions to defend from, but this is something I will have to experiment with once I have a rough draft of my level.

I've been away for the weekend and have come back feeling refreshed and ready to jump back into the work load, so the first thing I've done this week (week 4) is jump onto CS:GO and loaded up a few wingman maps in bot mode, and done some testing to see how long it takes for a player to run to each choke point on each map. Here is my written up research:

Cobblestone:

T to drop - 5 seconds
CT to drop - 2 seconds
T to platform - 7 seconds
CT to platform - 7 seconds

Train:

T to main - 10 seconds
CT to main - 7 seconds
T to Ivy - 13 seconds
CT to Ivy - 10 seconds
T to ladder - 15 seconds
CT to ladder 7 seconds

Vertigo:

T to mid - 10 seconds
CT to mid - 5 seconds
T to ramp - 8 seconds
Ct to ramp - 5 seconds



Level Design documentation:

- Goals of level & key areas

Main objective is for the T side to push onto the bomb site, plant the bomb and hold out the objective until the bomb detonates. Every time the bomb detonates, the T's win a point.

Main objective for the CT side is to defend the bomb site and prevent the enemy plant. If the bomb is not planted within the game timer, then the CT side win a point. If the CT defuse a planted bomb, they also win a point.

Either side may score a point if they eliminate all the enemy team.

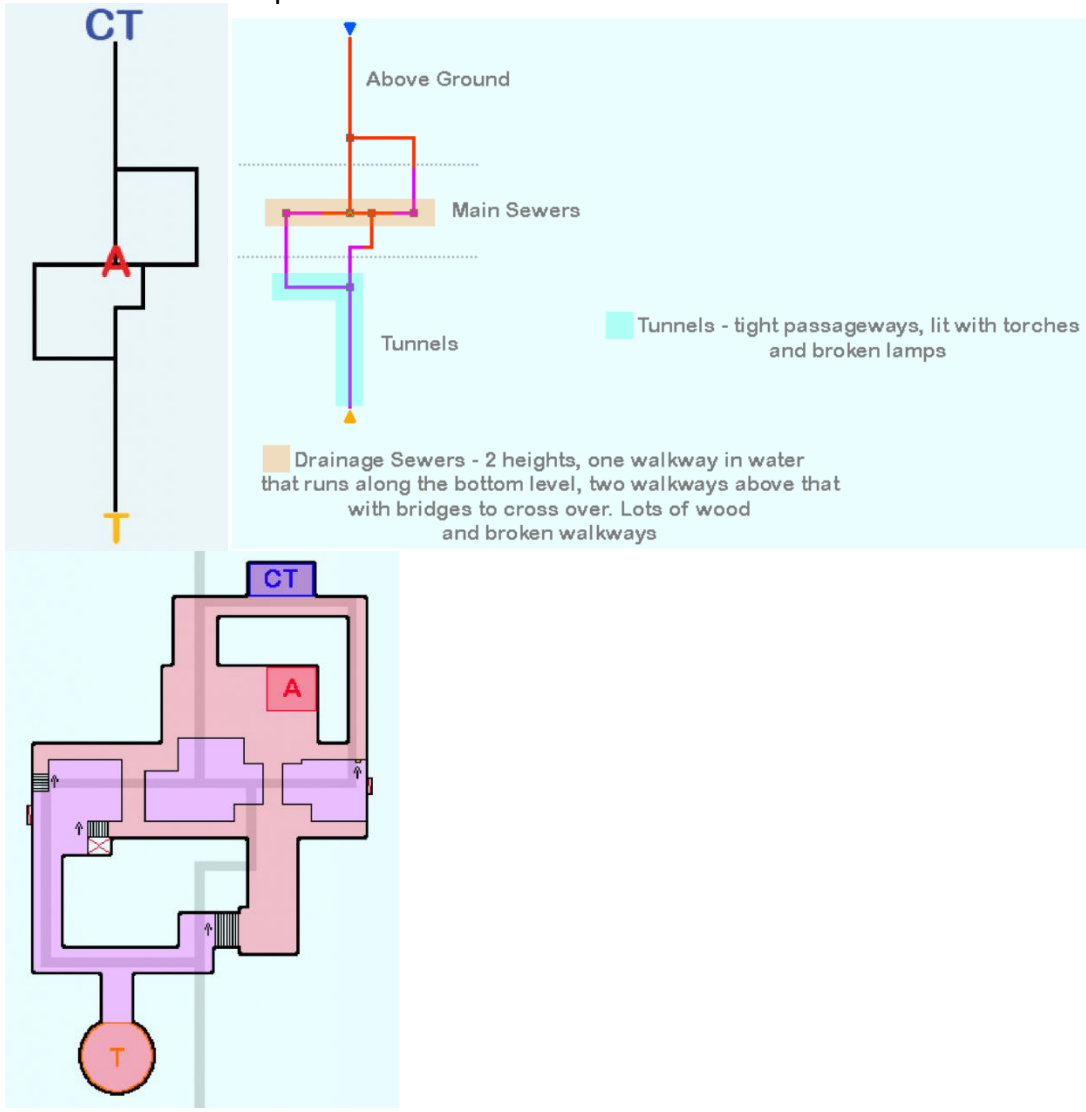
- Story (How, Why, What)

The T's are pushing through the sewers and looking for a bomb plant directly underneath the Police HQ in the hopes to blow through the floor and rescue their leader. As a CT you must defend against the push, prevent the explosion from happening and eliminate all hostiles.

- Focal Point

The focal point of the map will be a long stretch of sewage canal down the centre of the map and the bomb site above it. This is where all key conflicts will take part.

- Visual Development



- Colour Palette

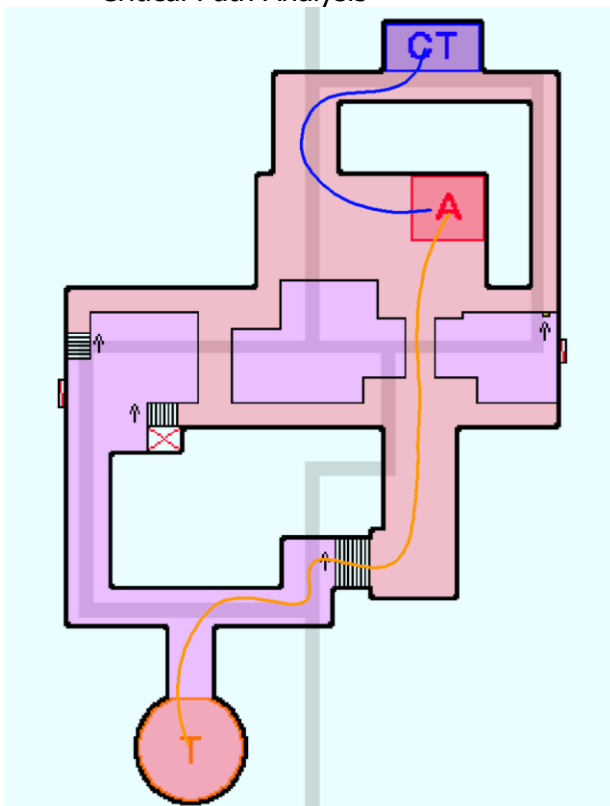
The colours will focus on dark, dirty browns, and greys colours for walls, and structures in the level.



- Lighting

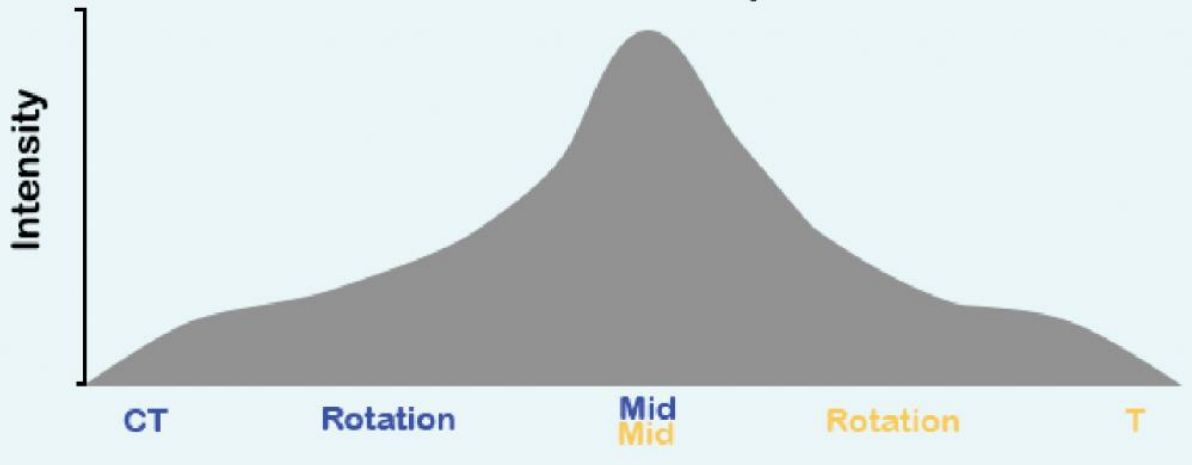
Lighting will be mainly used in dark areas where the skybox won't affect the level. I will use industrial style lamps, and dim lighting as a marker to guide the players movement and provide lighting to see enemy silhouettes better.

- Critical Path Analysis

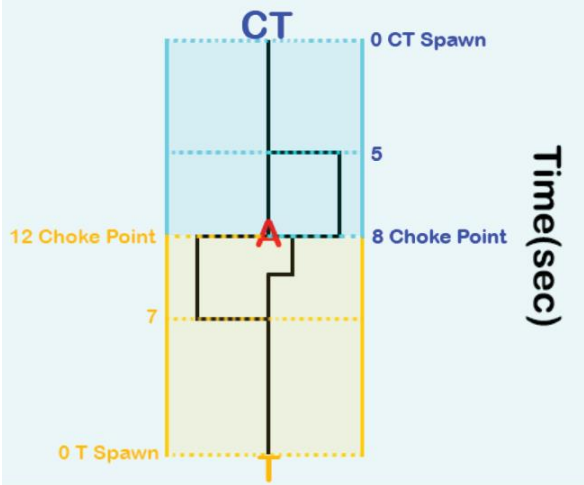


- Level flow

PaceMap



Map Scale



Player Characters, Controls and Abilities

- Player Controls

WASD- move

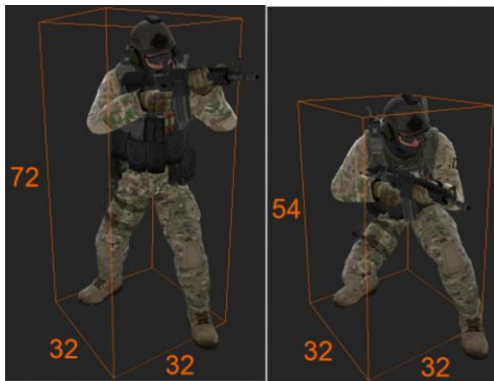
1234567890- weapon/grenade swap

Left CTRL- crouch

Left Shift- walk

Space- jump

- Character/s Metrics



Technique		Max Block Height can get on	Lowest Wall Height cannot peek over	Lowest Ceiling Height will not bump against
Solo	Crouch	18	47	55
	Walk/Run	18	65	73
	Jump while standing	54 (128 tick: 55)	119	127 (128)
	Jump while crouching	56 (57)	104	112
	Jump then crouch	63 (64)	111	118 (119)
	Crouch then jump	65 (66)	113	121
2 players	Crouch on a player	90	119	127
	Walk on a player	90	137	145
	Jump while standing on a player	129	194	202
	Crouch then jump on a player	138	185	193

Height in Units	Jump off Fall Damage		Run off Fall Damage		Crouch off and stand up Fall Damage	
	64 tick	128 tick	64 tick	128 tick	64 tick	128 tick
≤ 162	0	0	0	0	0	0
200	11	12	0	0	0	0
225	17	19	3	4	0	1
250	26	27	9	11	5	8
275	32	33	18	18	15	15
300	38	40	24	24	21	23
325	44	46	33	32	30	29
350	50	52	38	38	36	36
375	56	58	44	45	41	42
400	62	64	50	51	47	48
425	68	69	56	57	53	54
450	74	74	62	62	59	60
475	80	79	68	68	65	66
500	83	85	71	73	71	72
525	89	89	77	78	77	76
550	95	95	83	84	80	82
575	98	100	89	88	86	87
600	103	104	92	94	92	91
650	112	113	101	103	101	102
700	121	122	113	112	110	111
800	139	138	128	130	128	129
900	154	155	146	146	143	145
1000	169	170	161	161	161	160
1200	196	198	190	191	187	190
1400	223	223	217	216	214	216
1600	246	249	241	242	225	240
1800	270	271	265	264	264	264
2000	291	292	286	286	286	285
7500	687	689	684	685	684	685
8000	695	695	695	695	695	695
16000	695	695	695	695	695	695

Players jumping on a block with a height of 9 (128 tick: 11) units or higher will land on it silently (no crouching).

Players running off a block with a height of 20 units or more will fall. Otherwise they "stick" to the ground.

Players running off a block with a height of 47 (128 tick: 46) units or less will land silently.

Players running off a block with a height of 214 to 222 units hear a fall damage sound but don't receive any damage (64 tick only).

Players jumping off a block with a height of 159 to 162 units hear a fall damage sound but don't receive any damage (128 tick only).

Weapons

- Grenade metrics:



Smoke grenade diameter: 256 units

Smoke grenade height: 128 units

When smoking a corridor, it's always possible to cover a 200 unit width without gaps

Smokes shine through thin walls

Corridors with a width of more than 256 units cannot be covered without gaps.

Molotovs and incendiary grenades have a similar diameter to a smoke grenade