System test case - #5

Test case details

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Device: Laptop Macbook Pro 14, MacOS v15.3.2
Environment:

- Most recent main branch of the project repository
- Most recent commit is fd8e4ddbc58aeb8f54f8b908108b10174a612e3b
- Unity editor version 6000.0.35f1
- Unity editor

Test details
The test case focuses on testing how each parameter in Map Generator script affects the generated game world. All testing was done in Unity editor where parameters were changed one at a time and effects were viewed in editor.

Test steps and results
In the testing process one parameter at a time was changed and all others were on the default level. Viewing the game on default settings is used as a reference. All the planned test cases are listed in the table below. If any erroneous or unexpected behaviour was encountered, it was studied further in the observations section of this report.

Parameter name	Parameter default value	Parameter value	Expected behaviour	Actual behaviour	Observations.
Map Width	100	5	Map dimensions shorten on one axis	As expected	
Map Width	100	1000	Map dimensions grow on one axis	The game world breaks	Erroneous behaviour, see next section of the report
Map Height	100	5	Map dimensions shorten on the other axis	As expected	
Map Height	100	1000	Map dimensions grow on the other axis	The game world breaks	Erroneous behaviour, see next section of the report
Border Width	30	1	Border becomes very narrow	As expected	
Border Width	30	100	Border becomes very wide	The game world breaks	Erroneous behaviour, see

					next section of the report
Road Width	5	1	Road becomes narrow	As expected	
Road Width	5	30	Road becomes very wide	As expected	
Road Width	5	50	Road becomes even wider	The generator breaks. Index out of bound error	Erroneous behaviour, see next section of the report
Height Multiplier	3.46	0.1	The world becomes very flat	As expected	
Height Multiplier	3.46	15	The height differences grow	Borders rise high, but other ground stays pretty normal. Player falls through map when game is run	Erroneous behaviour, see next section of the report
Height Multiplier	3.46	-3.46	The ground sinks down	Does not work. Ground is flat	Unexpected behaviour, see next section
Offset	(0,0)	(0, 50)	Changes the height profile of the map	As expected	
Offset	(0,0)	(50, 0)	Changes the height profile of the map	As expected	
Offset	(0, 0)	(-50, -50)	Changes the height profile of the map	As expected	
Noise Scale	10	1 (min)	Hills become more pointy and increase in number	As expected	
Noise Scale	10	50 (max)	Very few hills with gentle profie	As expected	
UV Scale	500	1	Ground pattern becomes very small	As expected	
UV Scale	500	2000	Ground pattern becomes very large	As expected	
Seed	44	1	The world randomizes to different set up	As expected	
Seed	44	3	The world randomizes to different set up	As expected	
Seed	44	100	The world randomizes to different set up	As expected	
Octaves	3	1 (min)	Should increase the amount of	Bump profile changes, but	Changes seems to do very little

			ground bumps. Changes the perlin noise map of the ground	hard to tell if its more intense	
Octaves	3	10 (max)	Should decrease amount of ground bumps. Changes the perlin noise map of the ground	Bump profile changes, but hard to tell if its less intense	Changes seems to do very little
Persistence	1	0 (min)	Changes the perlin noise map of the ground	Something in the noise changes. Border hills seem to sink down	
Lacunarity	1	15	Makes edges more rough	As expected	
Auto Update	checked	unchecked	Changes made to other parameters should not automatically update to visible map.	As expected	

Observations

Changing map dimensions
It seems that stretching the dimensions too far breaks the generated world. Individually, if the other dimension is kept at default 100 the other can be increased to around 349 after weird behavior appears. If both are increased, then the limit is lower at around 190 each after which the borders and road seem to generate incorrectly. Extra testing on finding the limit was done on otherwise default settings.

Border width upper limit
When risen too high, the border with eventually breaks the game world. It seems the limit is around 78 for map size 100, 100 and about 28 for map size 200, 200. No other settings were changed other than map width/height and border width.

Road width upper limit
It looks like the maximum width of the road is 40, after which index out of bounds error appears. With default settings 40 is the width of the side borders deducted from map width.

Height multiplier
If the height multiplier is increased above 5 the player will fall through the map when the game is launched. Decreasing the multiplier below 0 seems to not do much.

Conclusions

In many cases there seems to be a limit to how high a parameter can be increased. These parameters easily break the map and there seems to be a connection between them for example in case of border width and map height / width. These connections should be looked into, and the values should be given limits on how they can be altered to make the user experience better. It's debatable if all of the values need to be adjustable in the interface.