

Manual annotations of SMB scenes : Pattern analysis

following <https://doi.org/10.1145/2427116.2427117>
Using maps from <https://nesmaps.com/maps/SuperMarioBrothers/SuperMarioBrothers.html>

Level segmentation procedure - setting up the env

- 1- Create a virtual env
- 2- Install stable-retro following the [dev installation guide](#)
- 3- Clone [mario dataset](#) + [mario.stimuli](#) through datalad
- 4- To have access to the spreadsheet with all the values regarding the segmentation:
 - 1- Go inside the mario directory
 - 2- Make sure to be using the [events branch](#): `git checkout events`
 - 3- `cd code/scenes/`
 - 4- open and edit `scenes_mastersheet.csv` (see next slide)

Level segmentation procedure - doing the thing !

5- Proceed to the segmentation of the level in this GSlides

6- For every segmented scene, annotate the content based on the different game patterns as defined in Table 1 of [Dahlskog & Togelius \(2012\)](#)

7- Add the info about the content of the scene in the scenes_mastersheet.csv

8- To get the Entry point and the Exit point of the scene:

1- Open the GUI: `cd stable-retro` and `./gym-retro-integration`

2- Load game (select the rom.nes file in the mario.stimuli/SuperMarioBros-Nes directory)

3- Load state... Use to select a specific state/level

4- To see the value: Window>Show scenario info... in the GUI

5- Look for: level_layout; player_x_posHi; player_x_posLo

6- To get the actual value for Entry/Exit point: $\text{player_x_posHi} * 256 + \text{player_x_posLo}$

Level annotation procedure - validating the thing !

To make sure the annotations make sense for all the segmented scenes, one proposition is to visualize the gameplays across trials and participants for each scene.

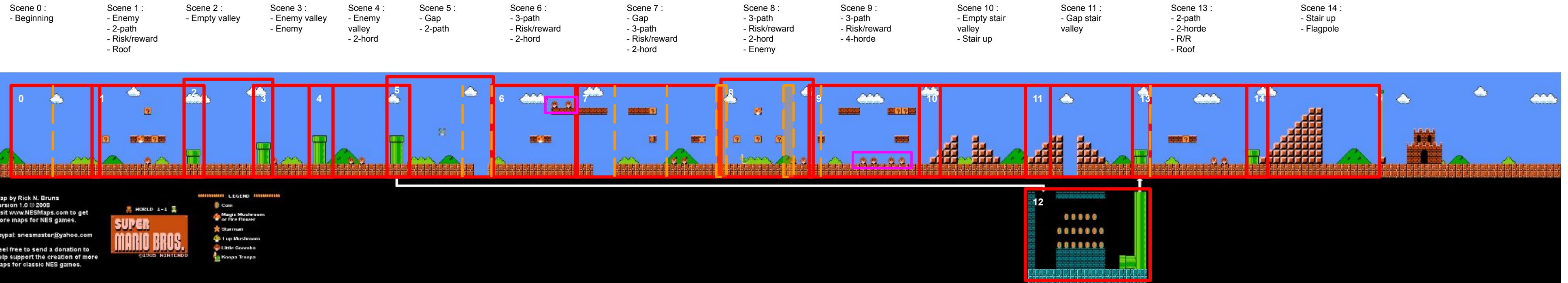
1- Make sure you ran `datalad get sub*/ses*/func/*event*` and `datalad get sub*/ses*/gamelogs/*bk2`

2- Run the `clip_extractor.py` script to segment the gameplays in scene:

```
python clip_extractor.py --datapath <path_to_bids_dataset> --output <path_to_save_outputs> --clip_extension mp4
```

3- Check if the annotations we have done bellow watch what is happening in the scenes. Add your observation to this google slides for each corresponding level

w1|1



Scene 12 :
- Reward

w1|2

Scene 0 :
 - 2-hord
 - 2-path
 - Risk-reward

Scene 1 :
 - Enemy stair valley
 - 2-path

Scene 2 :
 - 2-hord
 - 2-path
 - Risk-reward

Scene 3 :
 - 3-hord
 - Reward

Scene 4 :
 - Enemy
 - 2-hord
 - Roof

Scene 5 :
 - Gap
 - 2-path
 - Reward

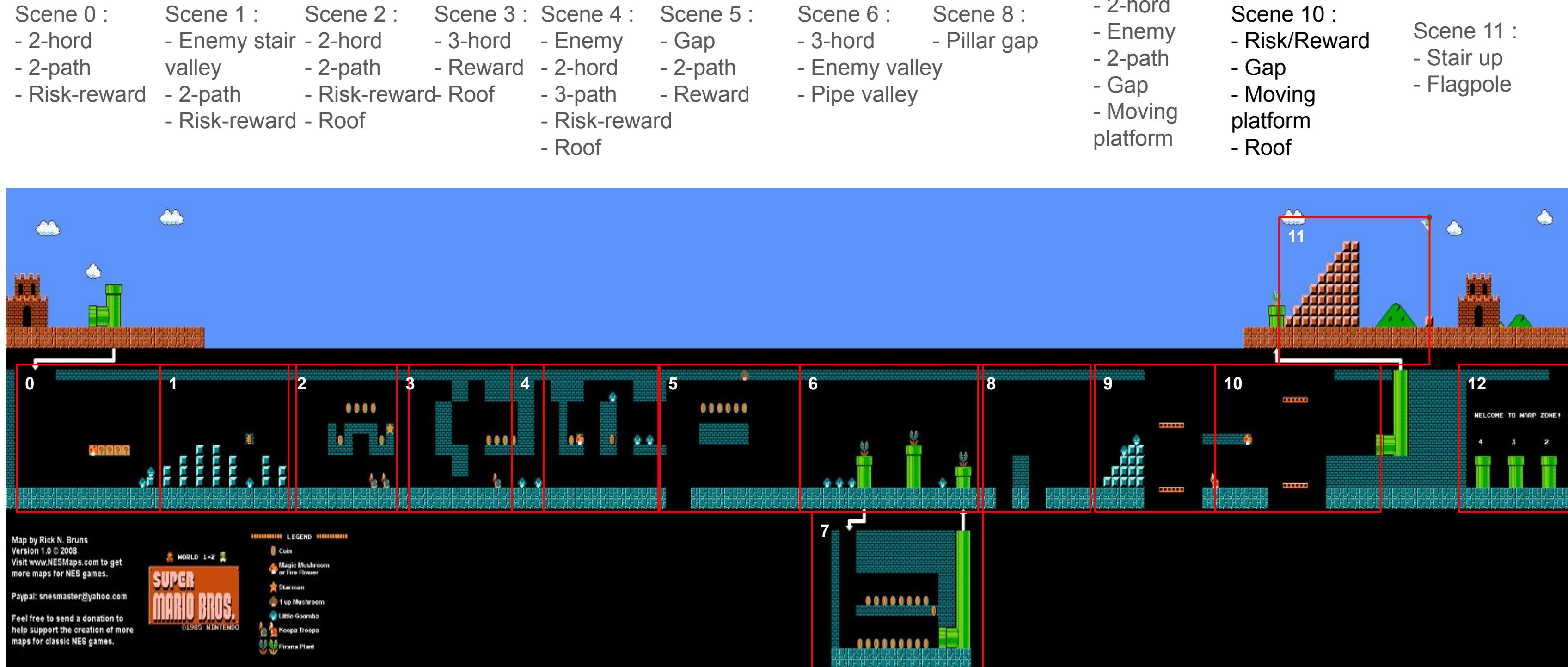
Scene 6 :
 - 3-hord
 - 2-path
 - Risk-reward

Scene 8 :
 - Pillar gap
 - Enemy valley
 - Pipe valley

Scene 9 :
 - Stair up
 - 2-hord
 - 2-path
 - Gap

Scene 10 :
 - Enemy
 - 2-path
 - Moving platform
 - Roof

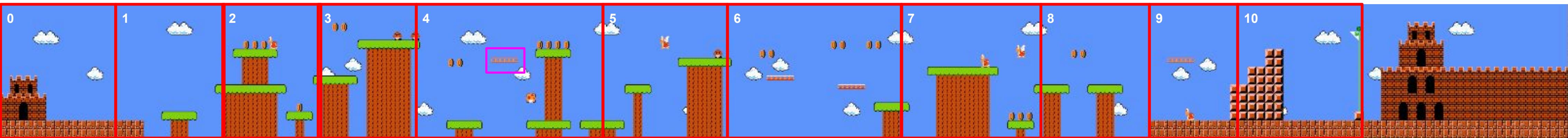
Scene 11 :
 - Stair up
 - Flagpole



Scene 7 :
 - Reward

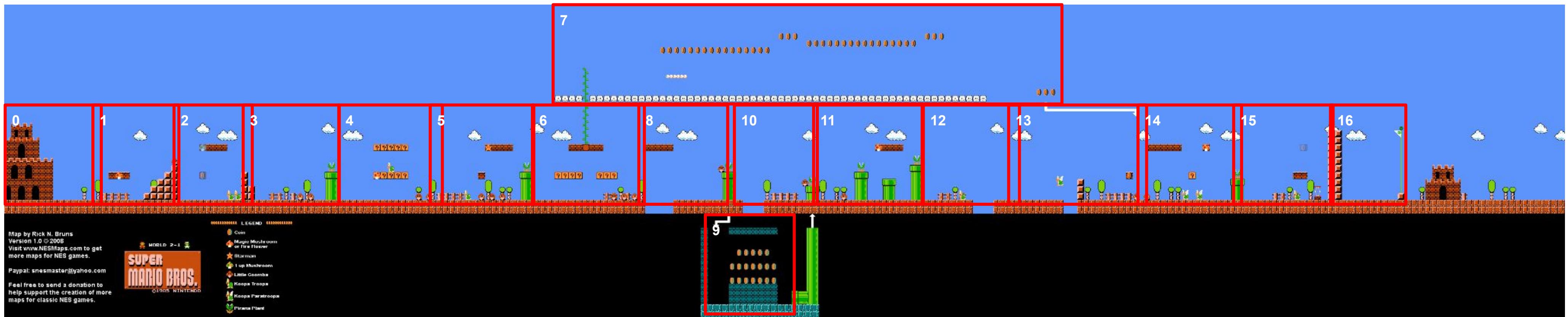
w1l3

0	1	2	3	4	5	6	7	8	9	10
- Beginning	- Variable gaps	- 2-Path - Enemy - Variable gaps	- 2-horde Gap	- Variable gaps - 2-path - Moving platform - Risk/Reward	- Variable gaps - 2-path - Gap enemy	- Variable gaps - Moving platform	- Variable gaps - 2-horde Gap enemy	- Multiple gaps	- Moving platform - Enemy	- Stair up - Flagpole



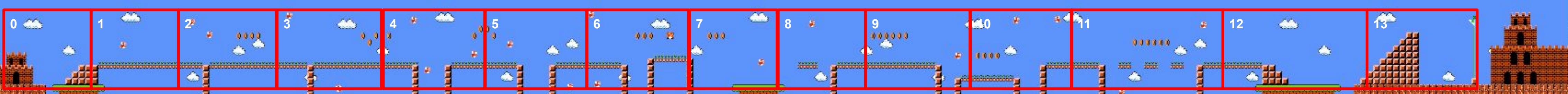
w2|1

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
- Beginning	- 2-path - Stairs up - Roof	- 2-path - 2-hord - Risk/Reward - Enemy stairs valley	- Enemy valley	- 2-hord - 3-path - Risk/Reward	- 3-hord - 2-path - Risk/Reward	- 3-hord - 3-path - Roof	- Bonus zone - Moving platform	- 2-path - enemy	- bonus zone	- Gap - enemy	- Enemy valley	- gap - enemy	- gap - enemy	- 4-hord - 2-path - risk/reward	- enemy	- flagpole



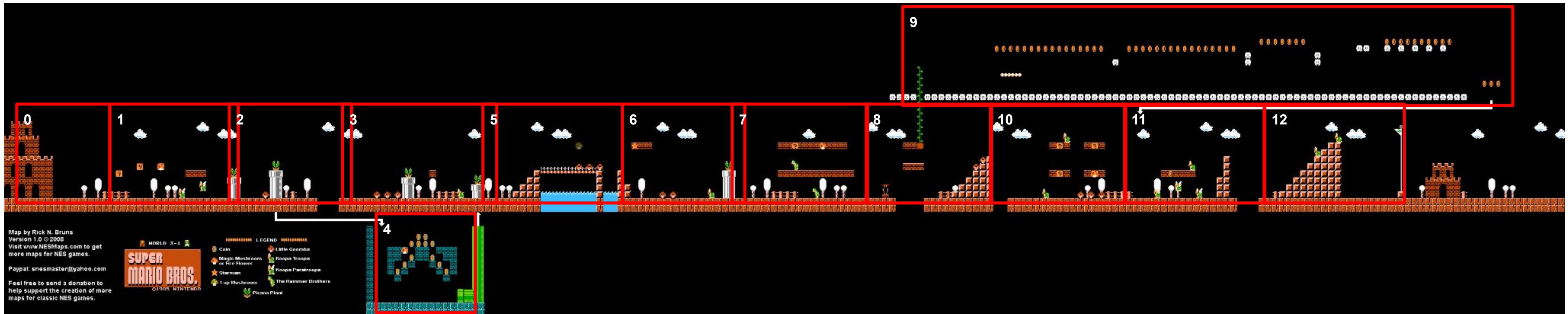
w2|3

0	1	2	3	4	5	6	7	8	9	10	11	12	13
- Beginning - Stair up - Gap	- Enemy	- Enemy	- Enemy	- Gap enemy	- Gap enemy	- Gap enemy - Risk/Reward	- Gap enemy	- Gap enemy - Variable gaps	- Gap enemy	- Gap enemy	- Gap enemy - Multiple gaps	- Gap enemy - Stairs down	- Stairs up - Flagpole



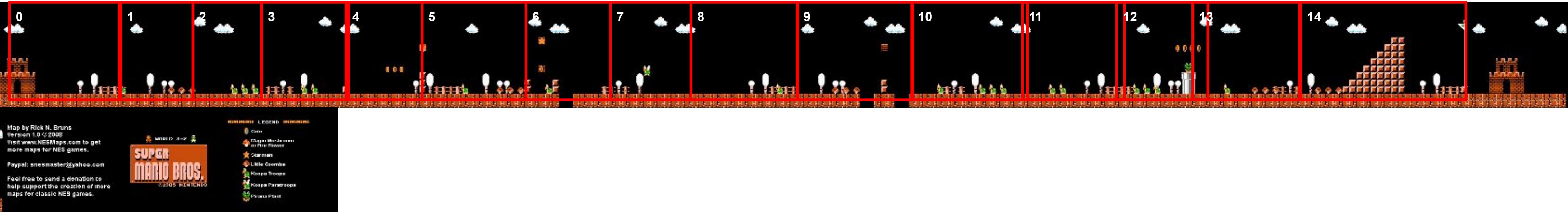
w3|1

0	1	2	3	4	5	6	7	8	9	10	11	12
- Beginning - 2-hord - Risk/reward - Roof - 2 path	- 2-hord - Roof - 2 path	- Enemy valley - Gap	- 3-hord - enemy valley - Roof - 2-path	- Bonus zone	- stairs up - 3-hord - gap - risk/reward	- 2-hord - 3-hord - gap - risk/reward	- 3-path - Risk/reward - 2-path - Enemy - Roof	- 3-path - Stairs up - 2-hord - Gap	- Bonus zone	- 3-hord - 3-path - Risk/reward - Roof	- Roof - Enemy - 3-hord - Gap	- 2-hord - Stairs up - Flagpole



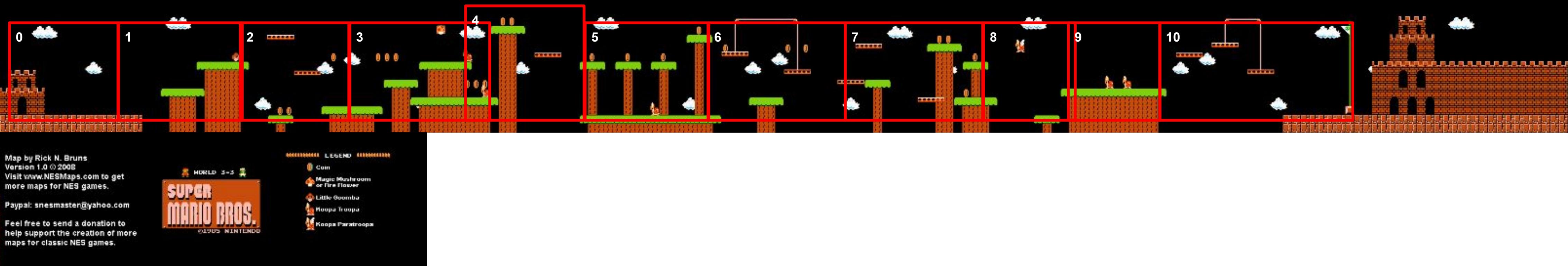
w3|2

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
- Beginning - Enemy	- 3-hord	- 3-hord	- 2-hord	- Empty valley	- Risk/Re ward - Enemy valley - 3-hord -	- Roof valley - Risk/Re ward - gap	- Enemy	- Enemy	- 3-hord - Multiple gaps	- Enemy - 3-hord	- 2-hord	- 3-hord	- Enemy - 3-hord	- 3-hord Stairs up Flagpole



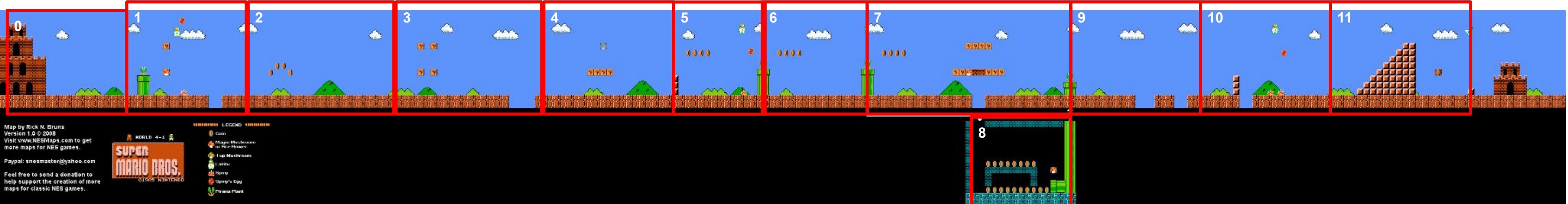
w3|3

0	1	2	3	4	5	6	7	8	9	10
- Beginning	- Gap - Enemy	- Moving platform - Variable gaps	- Gap - Risk/Reward - Enemy - 2-path	- Moving platform - gap	- Enemy - 2-path	- Moving platforms - Variable gaps	- Moving platforms - Variable gaps - 2-path	- Gap enemy	- 2-hord	- Moving platforms - Variable gaps - Flagpole



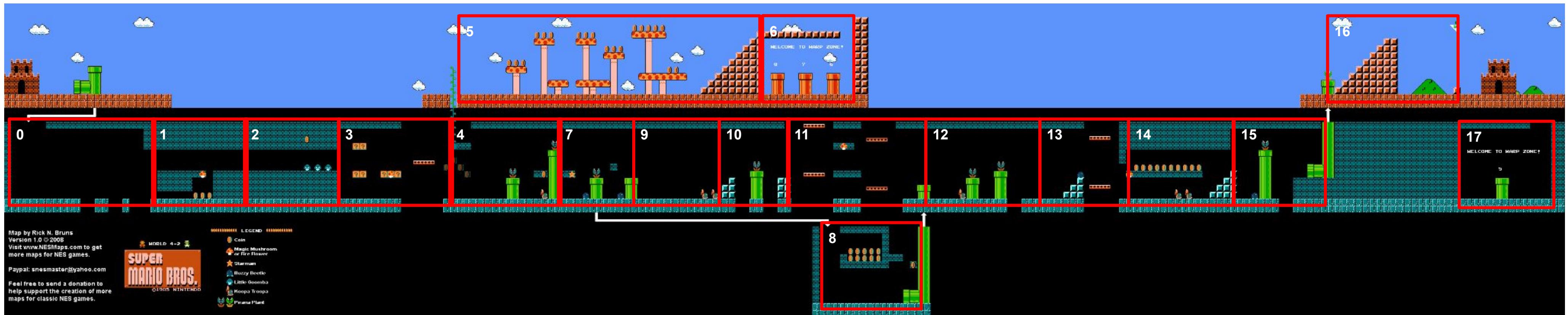
w4|1

0	1	2	3	4	5	6	7	8	9	10	11
- Beginning	- Enemy - Risk/Reward - gap	- Enemy	- enemy - gap	- 2-path - risk/reward	- Enemy valley	- Pipe valley	- Gap - 3-path - Risk/reward - Enemy - Roof	- Bonus zone Reward	- Variable gaps - Enemy	- Gap - enemy - 2-hord	- Stairs up - flagpole



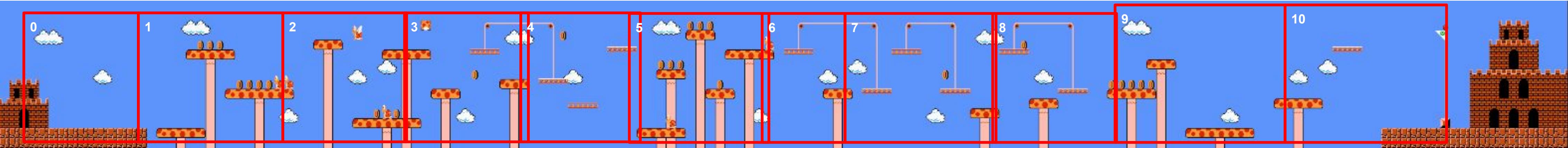
w4|2

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
- Beginning - Variable gaps	- Reward	- 3-hor d roof	- 2-pat h	- Enem y valley	- Bonu s zone	- Bonu s zone	- Roofv alley	- Bonu s	- 2-hor d	- Multi ple gaps	- 3-pat h	- Enem y valley	- Stairs up	- risk/r ewar d	- enemy valley	- Stairs up	- Bonus zone



w4|3

0	1	2	3	4	5	6	7	8	9	10
- beginning	- Variable gaps - 2-hord	- Gap enemy - 2-path - variable gap	- 2-path - reward - moving platform - Variable gaps	- Moving platforms - Variable gaps - 2-path	- enemy - 3-path - Variable gaps	- Variable gaps - moving platforms	- Variable gaps - moving platforms	- Variable gaps - moving platforms	- Variable gaps - 2 path	- Variable gaps - moving platforms - flagpole



Map by Rick N. Bruns

Version 1.0 © 2008

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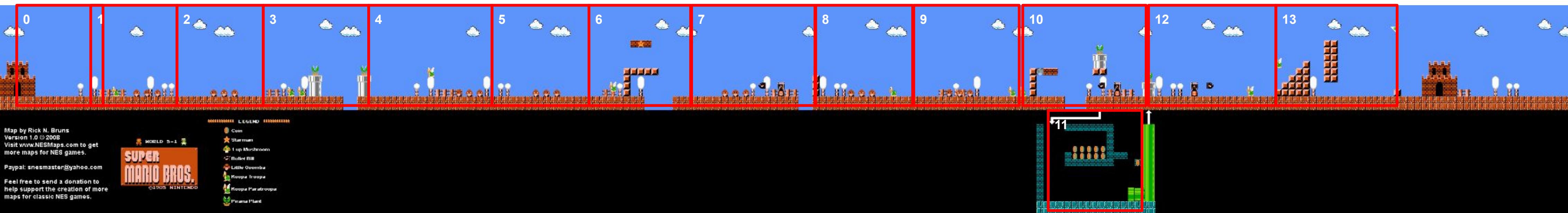
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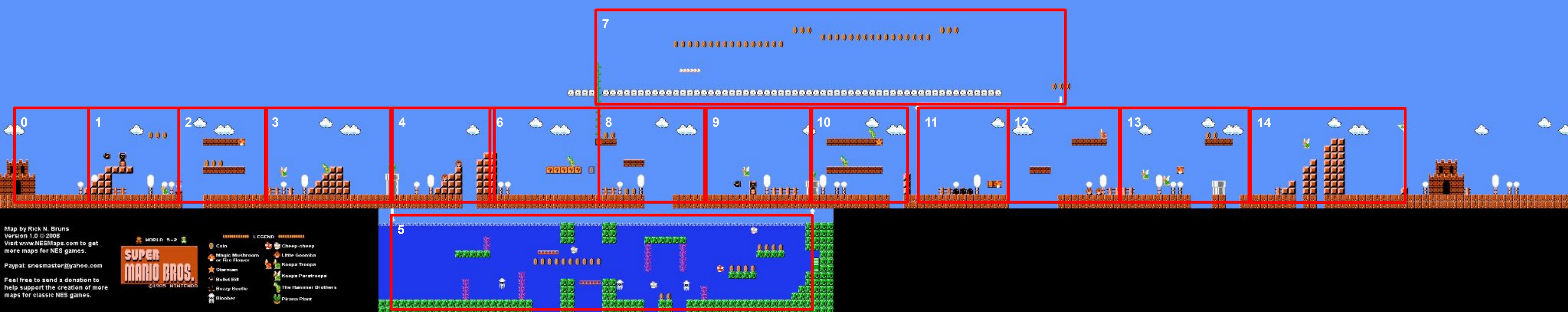
w5|1

0	1	2	3	4	5	6	7	8	9	10	11	12	13
- beginning	- enemy - 3-hord	- 3-hord	- 2-hord - gap - pipe valley	- enemy - 3-hord	- 3-hord	- enemy - gap - reward - 2-path	- 3-hord - gap - enemy	- 3-hord - enemy	- 3-hord	- 2-hord - gap - reward - enemy	- bonus zone	- enemy - 2 hord	- stairs up flagpole



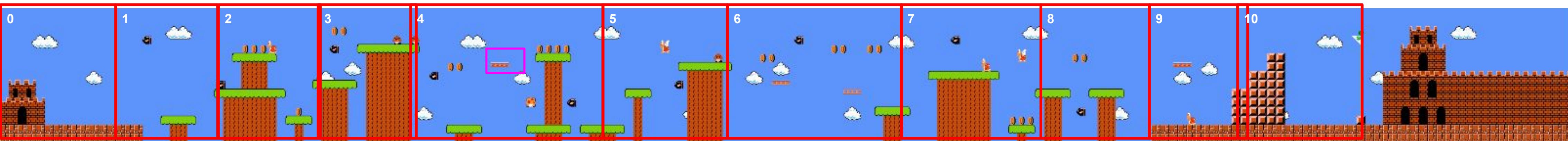
w5l2

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
- beginning	- stairs up - enemy	- gap - 3-path	- enemy - stairs up	- 2-hord - stairs up - gap	- bonus zone (aquaworld)	- 2-path enemy	- bonus zone (sky) - moving platform	- 2-path gap	- enemy	- 3-path enemy - risk/reward	- 3-hord - risk/reward	- gap - 2-path enemy - 2-hord	- 2-hord - 2-path enemy - 2-hord	- Gap enemy multiple gaps - stairs-up flagpole



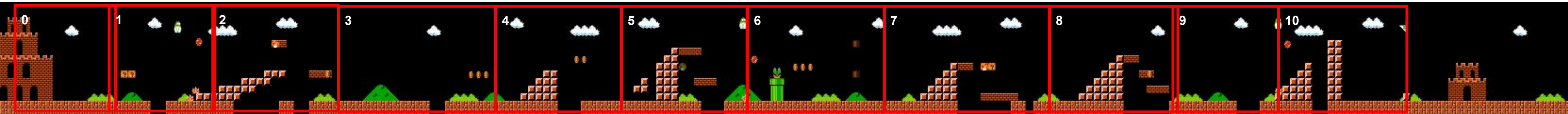
w5|3

0	1	2	3	4	5	6	7	8	9	10
- beginning	- Variable gaps - enemy	- Multiple gaps - enemy	- gaps - 2 hord - enemy - 2-path	- Variable gaps - enemy - moving platform - 2 path - reward	- Variable gaps - Gap enemy	- Variable gaps - enemy - moving platform	- Variable gaps - Gap enemy	- Variable gaps - enemy	- moving platform - enemy	- stairs-up - flagpole



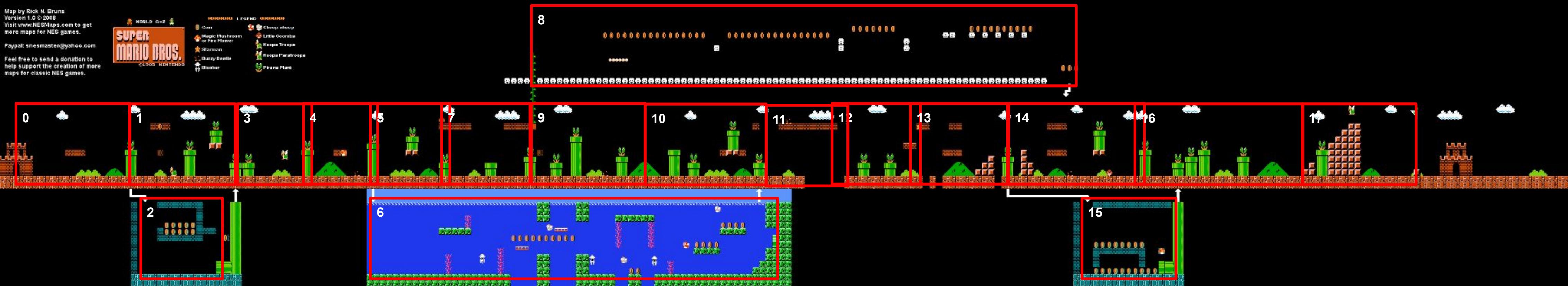
w6|1

0	1	2	3	4	5	6	7	8	9	10
- beginning	- gap - enemy - 2-hord -	- stairs up - 2-path - risk/reward - enemy - Variable gaps	- gap -	- stairs up - gap - enemy	- stairs up - gap - enemy	- enemy	- stairs up - reward - enemy - roof - Variable gaps	- stairs up - gap - enemy	- gap -	- stairs up - gap - flagpole - enemy



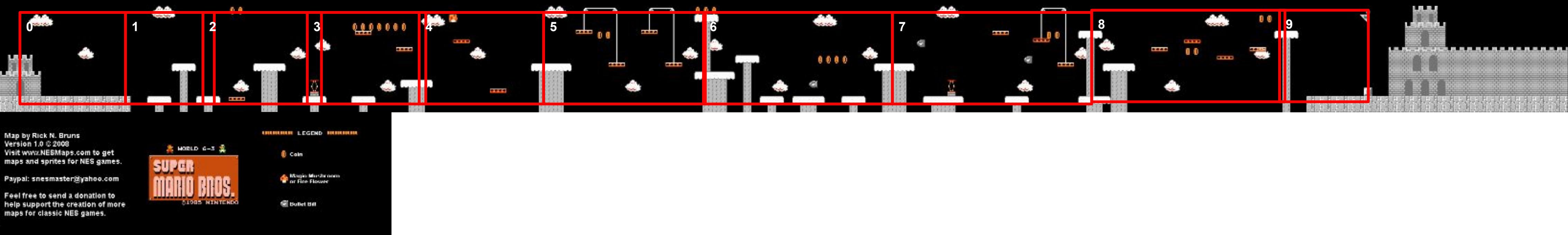
w6|2

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
- beginning - 2-pat h	- Roof valley - 2-pat h	- bonus zone	- Roof valley - 2-pat h	- risk/reward - roof valley	- roof valley - roof valley	- bonus zone (water world)	- bonus zone (water world)	- bonus zone (clouds)	- pipe enemy	- roof valley - 2-pat h	- 2-pat h	- pipe wall - gap	- multiple gaps	- 3-pat h	- bonus zone	- pipe valley - stairs up - 3 path	- staurole - flagpole - enemy



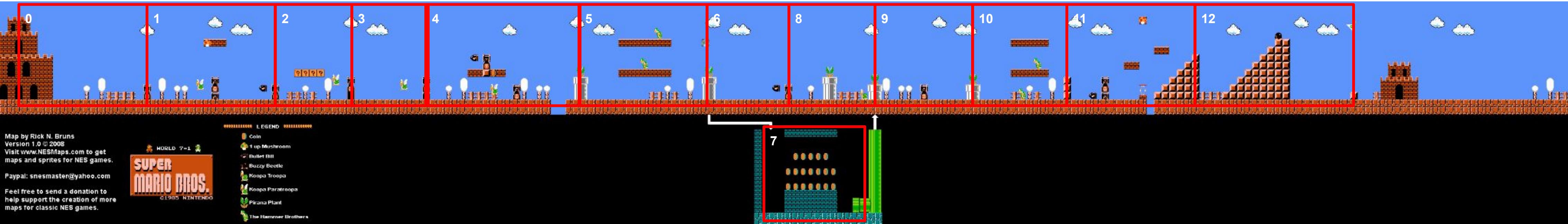
w6|3

0	1	2	3	4	5	6	7	8	9
- beginning	- Variable gaps	- Variable gaps - moving platform	- Variable gaps - moving platform - 2-path	- risk/reward - Variable gaps - moving platform	- Variable gaps - moving platform	- Variable gaps - enemy	- Variable gaps - moving platform - enemy	- Variable gaps - moving platform	- gap - flagpole



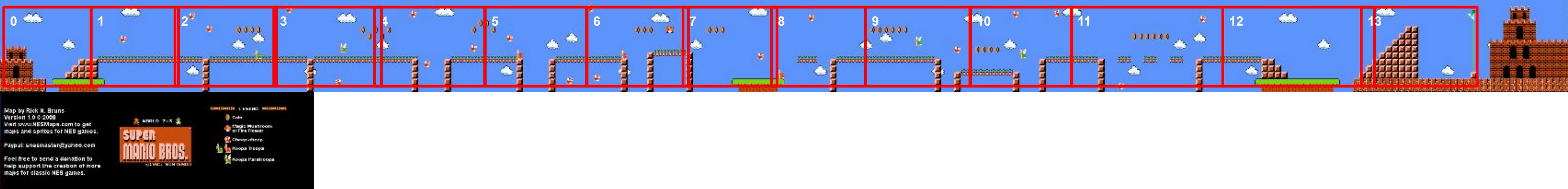
w7|1

0	1	2	3	4	5	6	7	8	9	10	11	12
- beginning - enemy	- enemy valley - risk/reward	- Roof valley - 2-path	- enemy valley	- enemy valley - roof - gap - 2-path	- 3-path - enemy valley - Roof valley	- enemy valley risk/reward	- bonus zone	- empty valley - enemy valley	- empty valley - enemy valley	- 3-path - roof valley	- 3-path - enemy valley - gap - stairs up	- stairs up - enemy flagpole



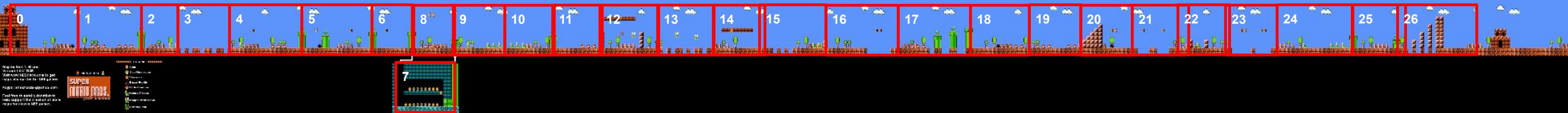
w7|3

0	1	2	3	4	5	6	7	8	9	10	11	12	13
- beginning - gap - stairs up	- enemy	- enemy	- enemy	- Gap enemy	- Gap enemy	- Gap enemy - risk/reward	- Gap enemy	- Gap enemy - Variable gaps	- Gap enemy	- Gap enemy	- Variable gaps - Gap enemy	- Gap enemy - stairs down	- stairs up - flagpole



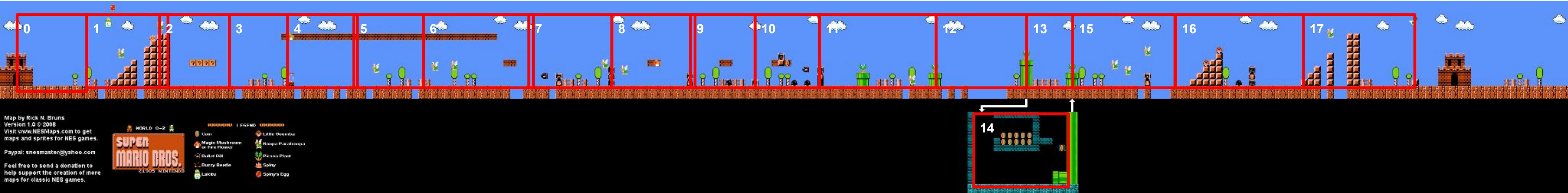
w8|1

	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
enemy 3-hord	- enemy valley	- pipe valley	- bonus zone	- 3-hord enemy valley	- enemy - 3-hord	- 3-hord	- 3-hord - enemy valley	- Roof valley 2-path	- 2-hord - Variable gaps - Gap enemy	- reward - 2-path	- Variable gaps - 2-hord	- gap	- 3-hord - Pillar gaps	- enemy - 3-hord	-



w8|2

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
- beginning enemy - enemy stairs up - multiple gaps	- Gap enemy - stairs up - multiple gaps	- 2-patch enemy - enemy	- gap enemy	- multiple gaps reward	- Gap enemy - multiple gaps	- 2-hor d - gap enemy	- Gap enemy - enemy	- enemy valley	- enemy valley	- 2-hor d - roof	- empty valley	- Varia ble gaps	- pipe valley	- bonus zone	- 3-hor d - Varia ble gaps - Gap enemy	- 2-hor d - enemy valley	- gap enemy - stairs up - Varia ble gap flag pole



w8|3

0	1	2	3	4	5	6	7	8	9	10	11
- beginning - enemy	- enemy valley	- empty valley	- 3-path - enemy - gap - risk/reward	- stairs down - gap - enemy	- enemy valley empty valley	- 3-path - risk/reward - enemy - Pillar gap - Roof valley	- Enemy	- enemy	- enemy	- enemy valley	- stairs up - multiple gaps - flagpole

