

Land use and zoning for Amsterdam.

Source: url='https://api.pdok.nl/brt/top10nl/ogc/v1'.

Tools: QGIS + WFS connection

Layer Properties - geopackage_polygons_land_use_ams — vlak_clip_bound_vlak_clip — Simbologia

Informação

Fonte

Simbologia

Valor: abc typefunctioneelgebied

Simbolo

Gradiente de cores: Random colors

Simbolo	Valor	Legenda
<input checked="" type="checkbox"/>	bedrijventerrein	bedrijventerrein
<input checked="" type="checkbox"/>	begraafplaats	begraafplaats
<input checked="" type="checkbox"/>	botanische tuin	botanische tuin
<input checked="" type="checkbox"/>	camping, kampeertrein	camping, kampeertrein
<input checked="" type="checkbox"/>	campus	campus
<input checked="" type="checkbox"/>	caravanpark	caravanpark
<input checked="" type="checkbox"/>	circuit	circuit
<input checked="" type="checkbox"/>	crossbaan	crossbaan
<input checked="" type="checkbox"/>	dierentuin, safaripark	dierentuin, safaripark
<input checked="" type="checkbox"/>	eendenkooi	eendenkooi
<input checked="" type="checkbox"/>	emplacement	emplacement
<input checked="" type="checkbox"/>	erebegraafplaats	erebegraafplaats
<input checked="" type="checkbox"/>	gebouwencomplex	gebouwencomplex
<input checked="" type="checkbox"/>	golfterrein	golfterrein
<input checked="" type="checkbox"/>	haven	haven
<input checked="" type="checkbox"/>	heemtuin	heemtuin
<input checked="" type="checkbox"/>	helikopterlandingsterrein	helikopterlandingsterrein
<input checked="" type="checkbox"/>	ijsbaan	ijsbaan
<input checked="" type="checkbox"/>	jachthaven	jachthaven
<input checked="" type="checkbox"/>	kazerne, legerplaats	kazerne, legerplaats
<input checked="" type="checkbox"/>	landgoed	landgoed
<input checked="" type="checkbox"/>	milieustraat	milieustraat
<input checked="" type="checkbox"/>	natuurgebied	natuurgebied
<input checked="" type="checkbox"/>	openluchttheater	openluchttheater

Classificar

Excluír Tudo

Avançado

Renderização da camada

Estilo

OK

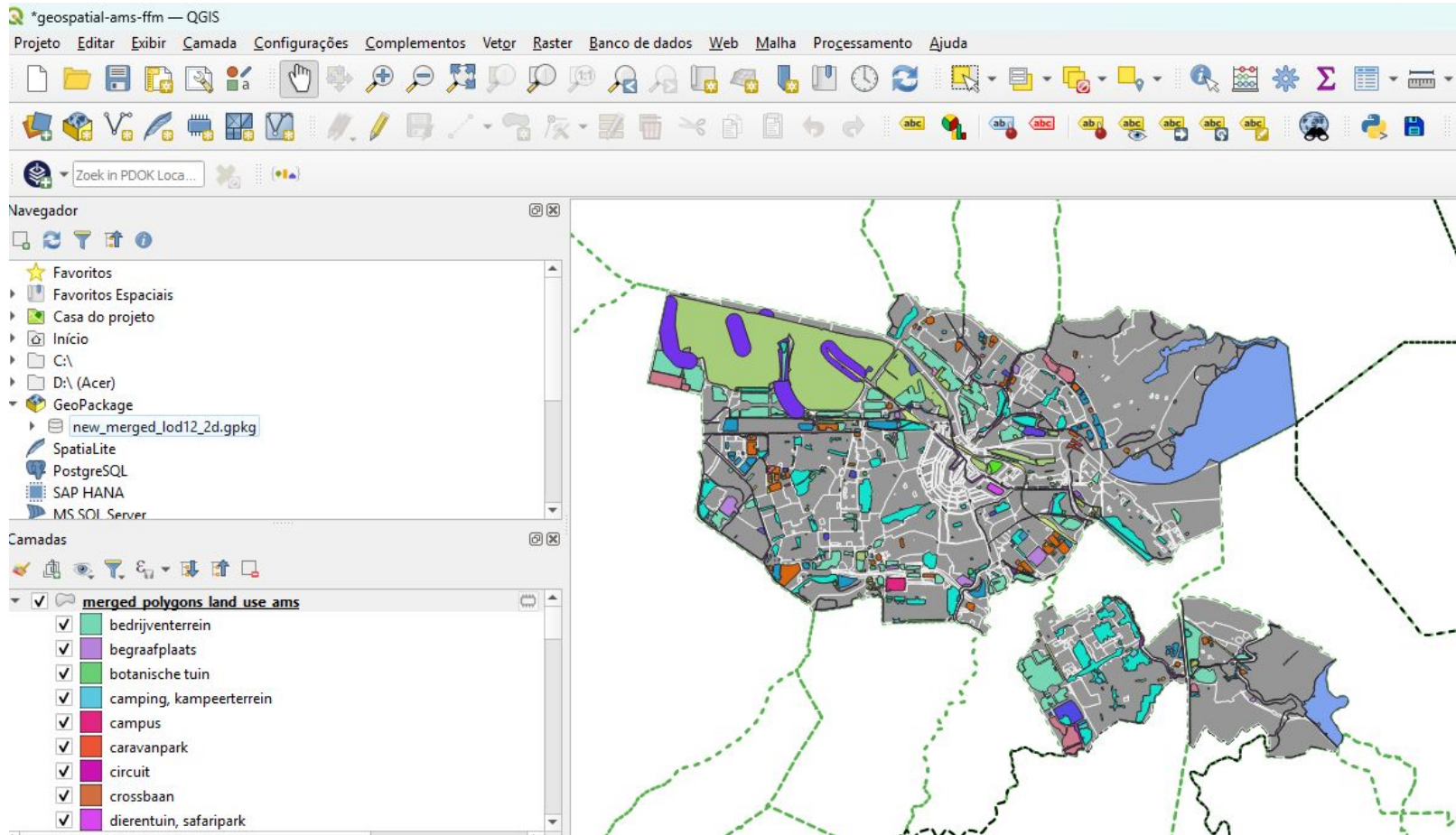
Cancelar

Aplicar

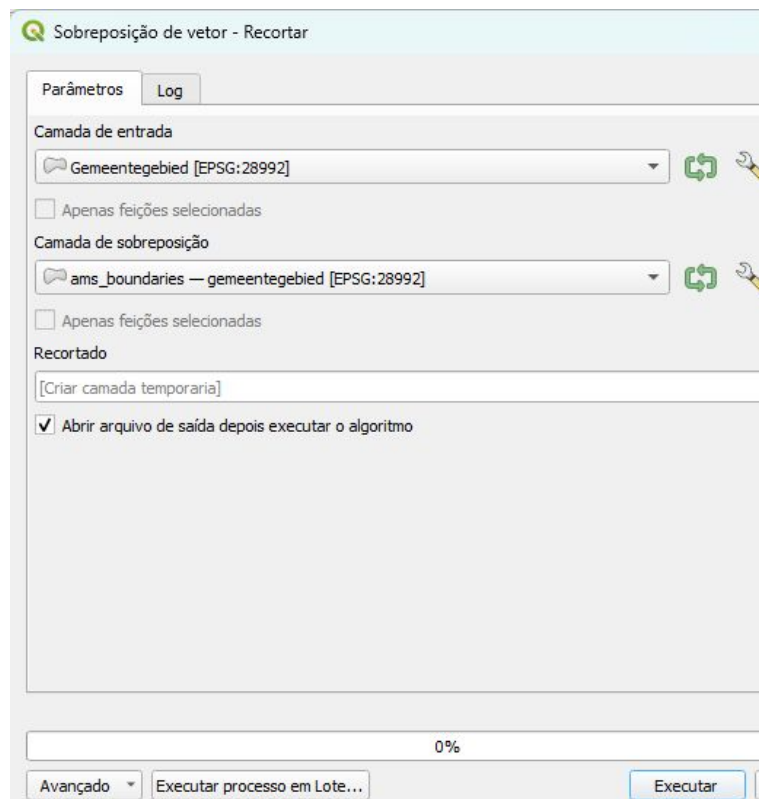
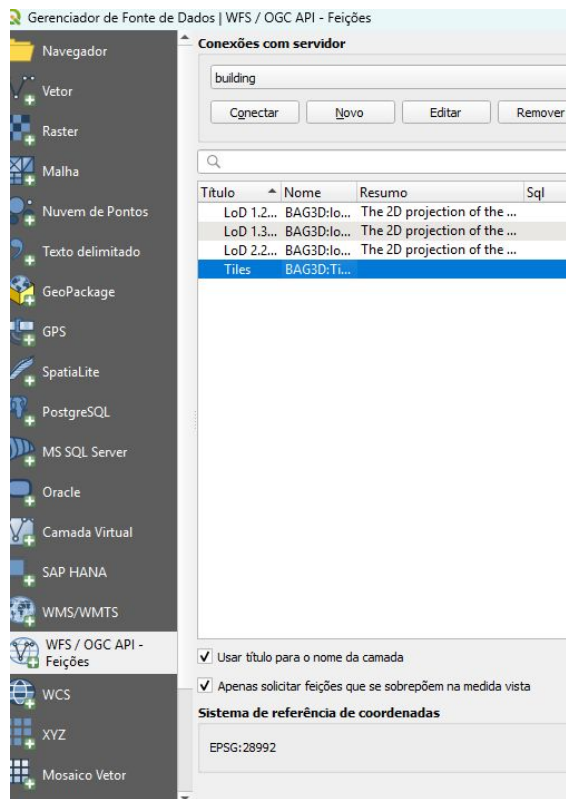
Ajuda

geopackage_polygons_land_use_ams — vlak_clip_bound_vlak_clip — Total de feições: 676, Filtrado: 676, Selecionado: 0

	fid	id	bronactualiteit	bronbeschrijving	ronnauwkeurigheid	brontype	lokaal_i
1	1	effe392-a623-5...	01/01/2022	Geometrie inge...	0,1	luchtfoto	131951824
2	2	109b258f-f0b7-...	01/01/2013	Een orthogerec...	0,1	luchtfoto	128275254
3	3	5c1760f4-863a-...	01/01/2014	Een orthogerec...	0,1	luchtfoto	100008450
4	4	4a599d0a-95b2...	01/01/2023	Geometrie inge...	0,1	luchtfoto	130351219
5	5	026b298a-b3a8...	01/01/2020	Geometrie inge...	0,1	luchtfoto	130755440
5	6	24b55b24-99b4...	01/01/2013	Een orthogerec...	0,1	luchtfoto	125269760
7	7	fa3ee6b6-d74e-...	01/01/2018	Geometrie inge...	0,1	luchtfoto	130945101
3	8	2d97739f-b514-...	01/01/2013	Een orthogerec...	0,1	luchtfoto	125205010
3	9	341f23ec-f917-...	01/01/2013	Een orthogerec...	0,1	luchtfoto	125269770
10	10	a92fce5a-241a-...	01/01/2013	Een orthogerec...	0,1	luchtfoto	125303617
11	11	cb83867a-6d26...	01/01/2019	Geometrie inge...	0,1	luchtfoto	131154417
12	12	a8254777-423e-...	01/01/2013	Een orthogerec...	0,1	luchtfoto	125303603
13	13	7fdada67-20db...	01/01/2018	Geometrie inge...	0,1	luchtfoto	125303614
14	14	07e42f6d-38ff-5...	01/01/2013	Een orthogerec...	0,1	luchtfoto	125233168
15	15	5b0d6c8d-9434...	01/01/2018	Geometrie inge...	0,1	luchtfoto	128329624
16	16	d41b0d17-d383...	01/01/2023	Geometrie inge...	0,1	luchtfoto	130350964
17	17	39a369c9-50bd...	01/01/2018	Geometrie inge...	0,1	luchtfoto	130783482
18	18	baf6583e-6488-...	01/01/2021	Geometrie inge...	0,1	luchtfoto	131786174
19	19	d7a112e1-9dc1...	01/01/2017	Geometrie inge...	0,1	luchtfoto	125384067
20	20	f875b039-a0cb-...	01/01/2017	Geometrie inge...	0,1	luchtfoto	125384061



Usage of the 3BAG API 'https://data.3dbag.nl/api/BAG3D/wfs/v1_1' to fetch the tiles and then download the .gpkg files for the AMSTERDAM (filtered like in the figure below). Tools: QGIS + WFS connection.



Download of the attribute table for the tiles. Grabbed all the geopackage files from here using an automated script. runned in python.

TILES - Excel (Falha na Ativação do Produto)					
Dados	Revisão	Exibir	Acrobat	Power Pivot	o que você deseja fazer...
Geral		Formatação Condicional	Inserir	Classificar e Filtrar	Localizar e Selecionar
Formatar como Tabela		Estilos de Célula	Excluir	Formatar	
Número		Estilo	Células	Edição	
Criar PDF e compartilhar o link		Criar PDF e via O		Adobe Acrobat	
AJ	AK	AL	AM	AN	
gpgkg_download	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/6/480/736/6-480-736	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/7/400/688/7-400-688	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/7/384/736/7-384-736	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/7/480/672/7-480-672	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/7/480/688/7-480-688	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/7/464/704/7-464-704	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/7/464/720/7-464-720	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/7/448/736/7-448-736	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/7/464/736/7-464-736	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/7/480/720/7-480-720	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/440/680/8-440-680	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/432/696/8-432-696	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/440/688/8-440-688	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/392/712/8-392-712	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/384/728/8-384-728	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/392/720/8-392-720	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/392/728/8-392-728	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/400/728/8-400-728	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/408/728/8-408-728	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/400/736/8-400-736	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/400/744/8-400-744	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/408/736/8-408-736	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/416/728/8-416-728	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/416/736/8-416-736	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/440/736/8-440-736	gpgkg_ssha256				
https://data.3dbag.nl/v20241216/tiles/8/440/744/8-440-744	gpgkg_ssha256				

```

download_gpkg_tiles.py X
> Users > USER > Desktop > QGIS_AMS_FFM > download_gpkg_tiles.py
1 import requests
2 import gzip
3 import shutil
4 from pathlib import Path
5
6 # 📁 Caminho para o arquivo de URLs
7 txt_path = Path("tiles_gpkg.txt")
8
9 # 📁 Pasta de destino
10 download_dir = Path("tiles_gpkg_downloaded")
11 download_dir.mkdir(parents=True, exist_ok=True)
12
13 # 🌐 Lê todas as URLs do arquivo
14 with open(txt_path, "r", encoding="utf-8") as f:
15     urls = [line.strip() for line in f if line.strip().startswith("http")]
16
17 # 📄 Baixa e descompacta cada arquivo
18 for url in urls:
19     try:
20         filename_gz = url.split("/")[-1]
21         path_gz = download_dir / filename_gz
22         path_gpkg = download_dir / filename_gz.replace(".gz", "")
23
24         print(f"📄 Downloading: {filename_gz}")
25         r = requests.get(url)
26         r.raise_for_status()
27
28         with open(path_gz, "wb") as f:
29             f.write(r.content)
30
31         print(f"📄 Decompressing: {filename_gz}")
32         with gzip.open(path_gz, "rb") as f_in:

```

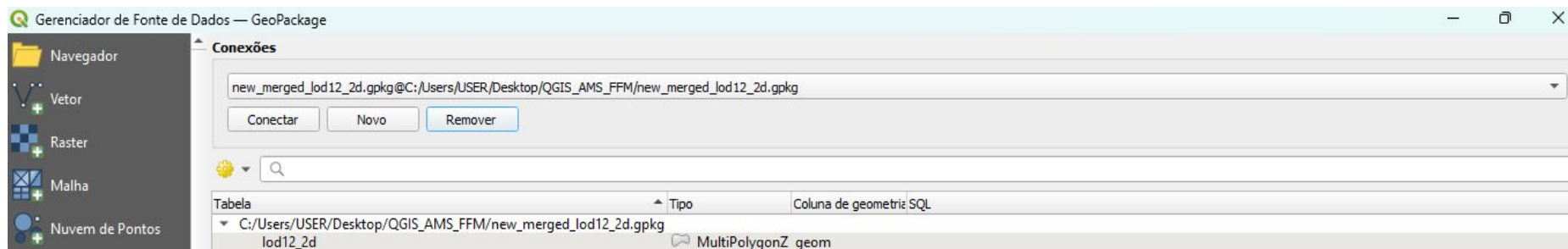
Merged all the .gpkg files into one using the OSGeo4W shell running a bat file.

Nome	Data de modificação	Tipo	Tamanho
6-480-736.gpkg	17/07/2025 16:21	Arquivo GPKG	16.688 KB
7-384-736.gpkg	17/07/2025 16:22	Arquivo GPKG	18.140 KB
7-400-688.gpkg	17/07/2025 16:21	Arquivo GPKG	9.732 KB
7-448-736.gpkg	17/07/2025 16:22	Arquivo GPKG	25.168 KB
7-464-704.gpkg	17/07/2025 16:22	Arquivo GPKG	13.860 KB
7-464-720.gpkg	17/07/2025 16:22	Arquivo GPKG	1.384 KB
7-464-736.gpkg	17/07/2025 16:22	Arquivo GPKG	7.368 KB
7-480-672.gpkg	17/07/2025 16:22	Arquivo GPKG	10.936 KB
7-480-688.gpkg	17/07/2025 16:22	Arquivo GPKG	30.240 KB
7-480-720.gpkg	17/07/2025 16:22	Arquivo GPKG	344 KB
8-384-728.gpkg	17/07/2025 16:22	Arquivo GPKG	2.120 KB
8-392-712.gpkg	17/07/2025 16:22	Arquivo GPKG	22.004 KB
8-392-720.gpkg	17/07/2025 16:22	Arquivo GPKG	30.700 KB
8-392-728.gpkg	17/07/2025 16:22	Arquivo GPKG	14.492 KB
8-400-728.gpkg	17/07/2025 16:22	Arquivo GPKG	13.500 KB
8-400-736.gpkg	17/07/2025 16:22	Arquivo GPKG	8.960 KB
8-400-744.gpkg	17/07/2025 16:23	Arquivo GPKG	23.880 KB
8-408-728.gpkg	17/07/2025 16:22	Arquivo GPKG	20.180 KB
8-408-736.gpkg	17/07/2025 16:23	Arquivo GPKG	10.676 KB

```
OSGeo4W Shell - new_mergei x + v
run o-help for a list of available commands
C:\Program Files\QGIS 3.34.15>cd "C:\Users\USER\Desktop\QGIS_AMS_FFM"

C:\Users\USER\Desktop\QGIS_AMS_FFM>new_merged_build.bat
0Ü0'0Ã Criando base com 10-420-698.gpkg
Warning 1: Layer 'lod12_2d' has been declared with non-Z geometry type
Z. Setting the Z=2 hint into gpkg_geometry_columns
0x0 Tentando adicionar 10-420-698.gpkg
0x0 Tentando adicionar 10-420-712.gpkg
0x0 Tentando adicionar 10-420-714.gpkg
0x0 Tentando adicionar 10-420-716.gpkg
0x0 Tentando adicionar 10-420-718.gpkg
0x0 Tentando adicionar 10-422-698.gpkg
0x0 Tentando adicionar 10-422-712.gpkg
0x0 Tentando adicionar 10-422-714.gpkg
0x0 Tentando adicionar 10-422-716.gpkg
0x0 Tentando adicionar 10-422-718.gpkg
0x0 Tentando adicionar 10-424-712.gpkg
0x0 Tentando adicionar 10-424-714.gpkg
0x0 Tentando adicionar 10-424-716.gpkg
0x0 Tentando adicionar 10-424-718.gpkg
0x0 Tentando adicionar 10-424-720.gpkg
0x0 Tentando adicionar 10-424-722.gpkg
0x0 Tentando adicionar 10-424-724.gpkg
0x0 Tentando adicionar 10-424-726.gpkg
0x0 Tentando adicionar 10-426-712.gpkg
0x0 Tentando adicionar 10-426-714.gpkg
```

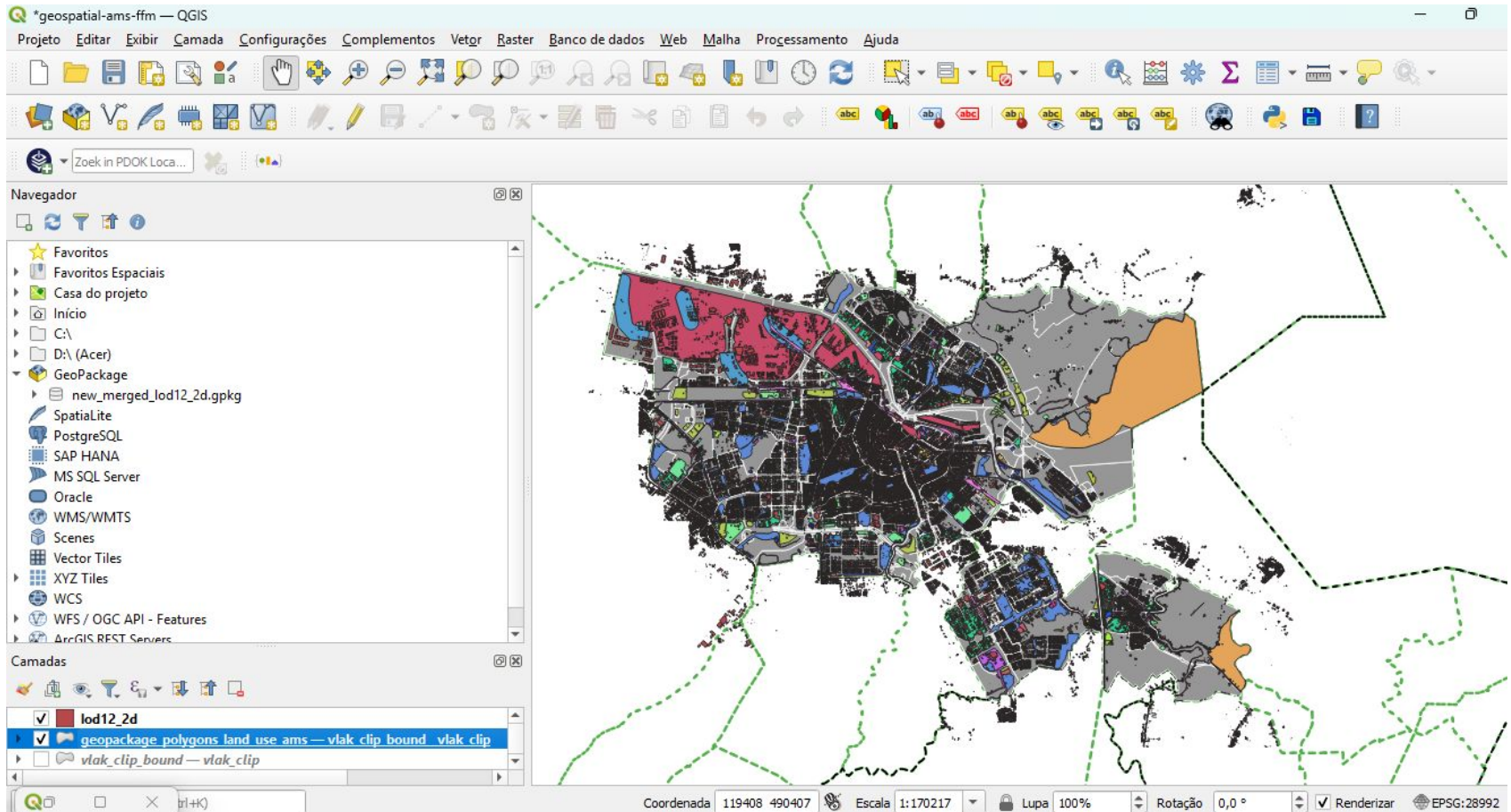
Finally did the gpkg connection and added the merged gpkg file for all the buildings.



lod12_2d — Total de feições: 236052, Filtrado: 236052, Selecionado: 0

	fid	b3_h_50p	b3_h_70p	b3_h_max	b3_h_min	b3_dd_id	identificatie	b3_pand_deel_id
1	1	7,476074695587...	8,071625709533...	9,822983741760...	4,326781749725...	0	NL.IMBAG.Pan...	0
2	2	4,999258518218...	5,180910587310...	5,550759315490...	1,174875974655...	0	NL.IMBAG.Pan...	0
3	3	3,172452211380...	4,414970874786...	7,164927959442...	-0,60985338687...	0	NL.IMBAG.Pan...	0
4	4	-0,95830917358...	-0,93947702646...	-0,89861851930...	-1,01164722442...	0	NL.IMBAG.Pan...	0
5	5	-1,20985507965...	-1,18685209751...	-1,12054598331...	-1,30824315547...	0	NL.IMBAG.Pan...	0
6	6	5,711489200592...	6,604867935180...	8,870736122131...	3,721873283386...	0	NL.IMBAG.Pan...	0
7	7	2,577963829040...	4,14931058883667	6,515730857849...	0,058909647166...	0	NL.IMBAG.Pan...	0
8	8	1,101987957954...	1,196145892143...	1,335438013076...	0,806221544742...	0	NL.IMBAG.Pan...	0
9	9	-1,09114146232...	-1,06685829162...	-0,99326521158...	-1,17960190773...	0	NL.IMBAG.Pan...	0

Assignment completed! (just for Amsterdam)



Main Difficulties:

- The language barrier: dealing with local datasets was a big challenge, specialty for those who don't understand dutch (me!). But it was fun to check out the [geoforum.nl](https://www.geoforum.nl) and see how amazing is the geo community in netherlands.
- Big datasets: large and thousand possibilities for data usage.
- New tools like the native QGIS OSGeo4 W SHELL, I used to merge the hundreds gpkg files to build an unique layer (ref: slide 5)