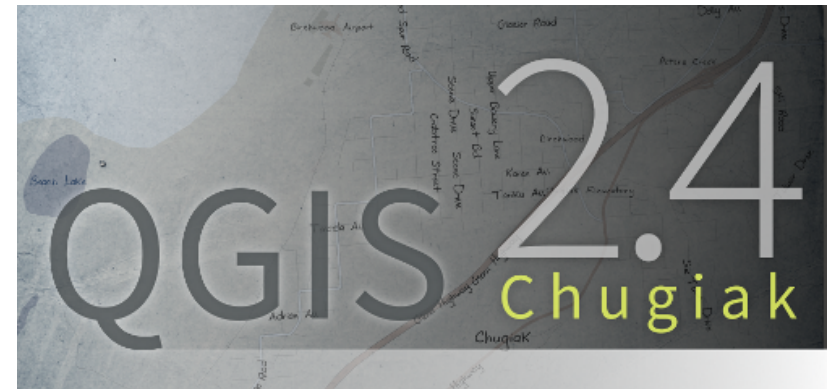
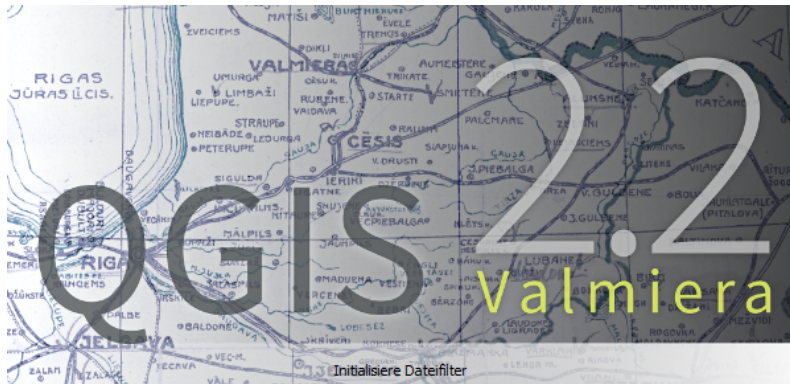


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# New Functions in QGIS



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## Versions 2.2 and 2.4



Marco Hugentobler (Sourcepole) and Andreas Neumann (Stadt Uster)

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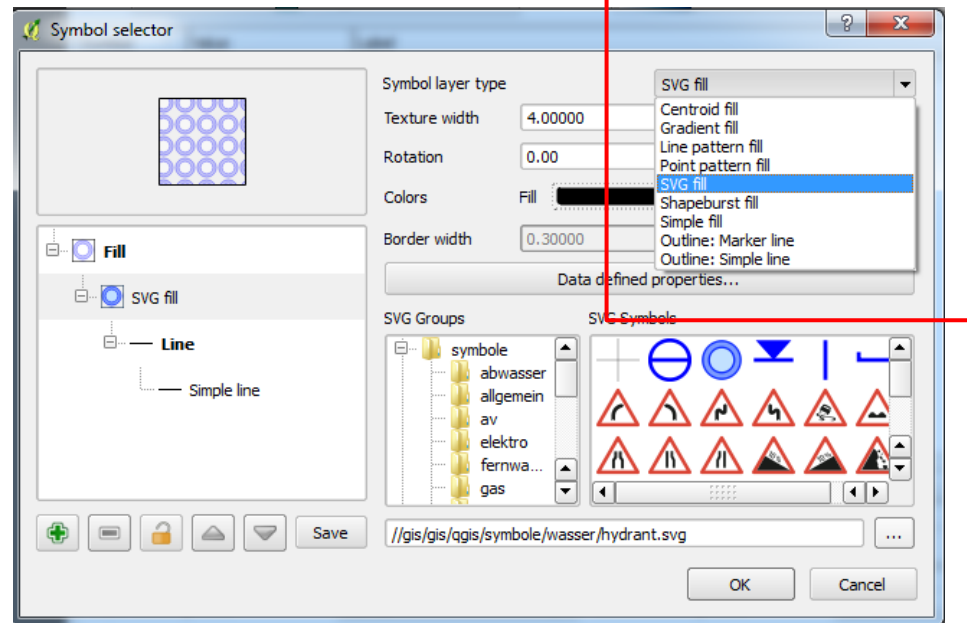
# Agenda

---

- Symbology and Labeling
  - Print Composer
  - Atlas-Serial Printing
  - Forms and Relations
  - Datum transformations
  - Data format support
  - Under-the-hood improvements
-

# Symbology - Current Fill Types

- Simple fill
- Line pattern fill (Schraffur)
- Point pattern fill (Punktraster)
- SVG fill (vector fill)
- Centroid fill
- Gradient fill
- Shapeburst fill



# Symbology - Gradient Support (2.2)

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- Two color or ramp based
  - Linear, radial or conical
  - Viewport or object based gradient bounding box
  - Supports data-defined properties with expressions
-

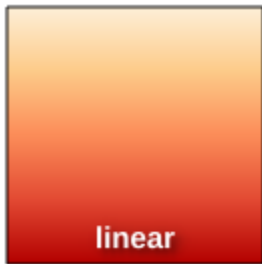
# Symbology - Gradient Support (2.2)

The image displays a map of the Uster region with several districts highlighted in different colors. A dialog box titled "Symbolauswahl" (Symbol Selection) is open, showing the configuration for a gradient fill. The dialog includes the following settings:

- Symbollayertyp:**  Zweifarb,  Farbverlauf
- Gradiententyp:** Linear
- Koordinatenmodus:** Objekt
- Spreizen:** Auffüllen
- Referenzpunkt 1:** x: 0.50, y: 0.00,  Objektzentroid
- Referenzpunkt 2:** x: 0.50, y: 1.00,  Objektzentroid
- Winkel:** 45.00 °
- X-,Y-Versatz:** 0.00000, 0.00000, Millimeter

The dialog also features a "Speichern" (Save) button and "OK" and "Abbrechen" (Cancel) buttons.

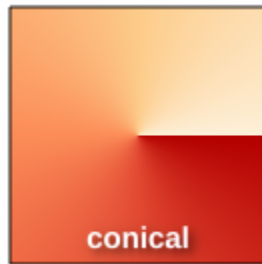
# Symbology - Gradient Support (2.2)



linear



radial



conical

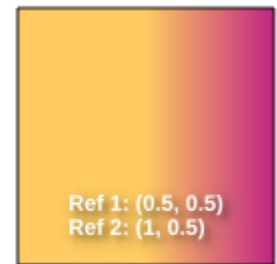
Color Gradient Type



Ref 1: (0.5, 0)  
Ref 2: (0.5, 1)

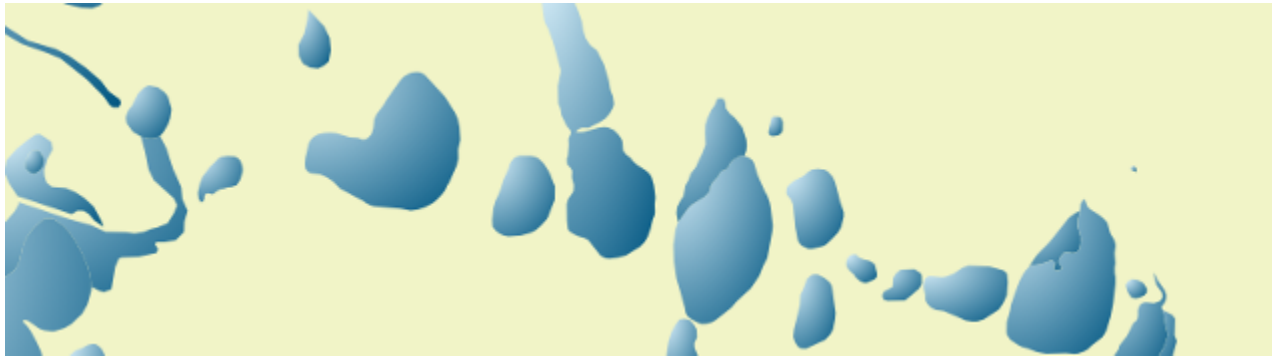


Ref 1: (0, 0)  
Ref 2: (1, 1)



Ref 1: (0.5, 0.5)  
Ref 2: (1, 0.5)

Influence of Reference Points



Object bounding box mode



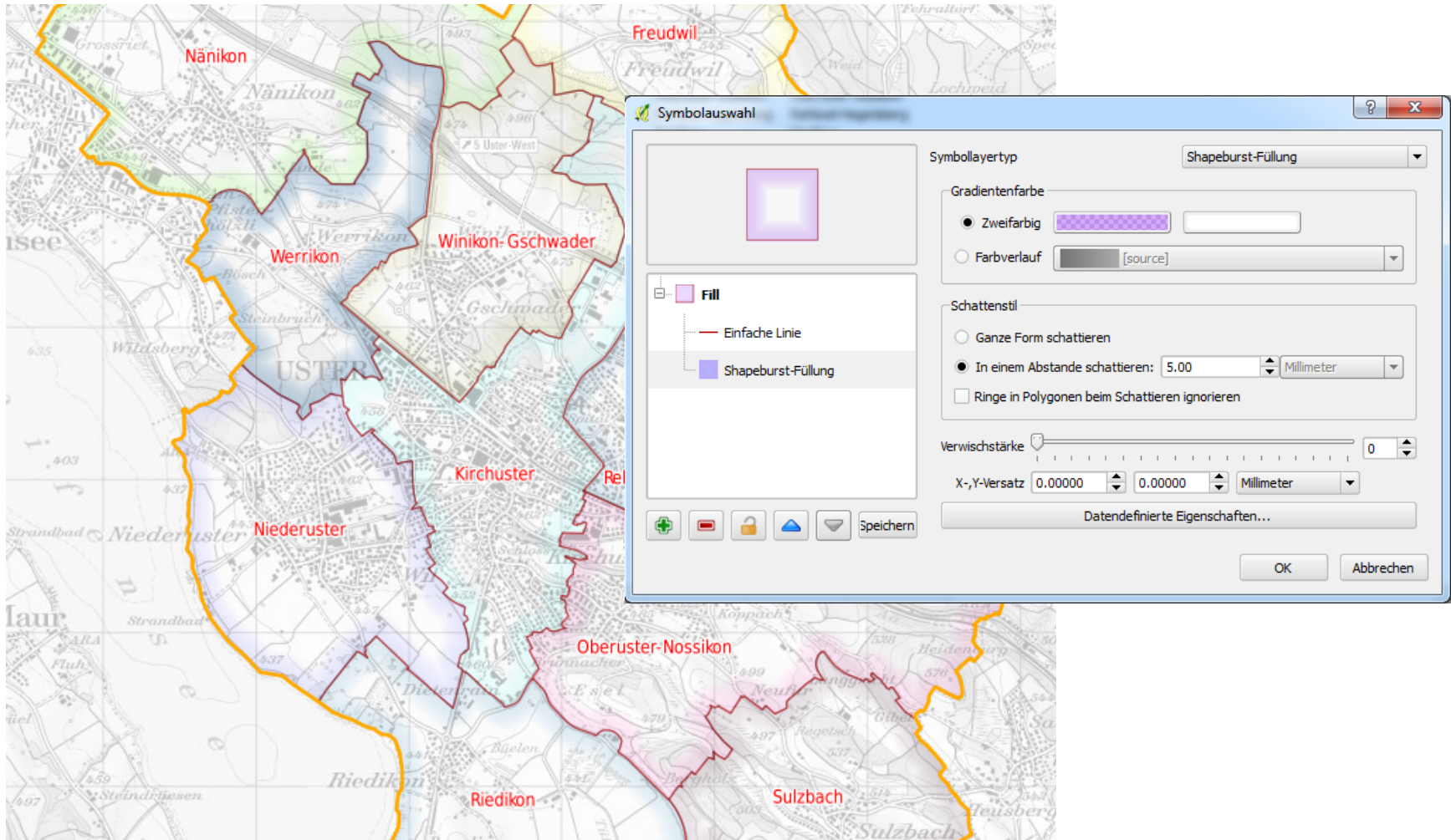
Viewport bounding box mode

# Symbology - Shapeburst Support (2.4)

---

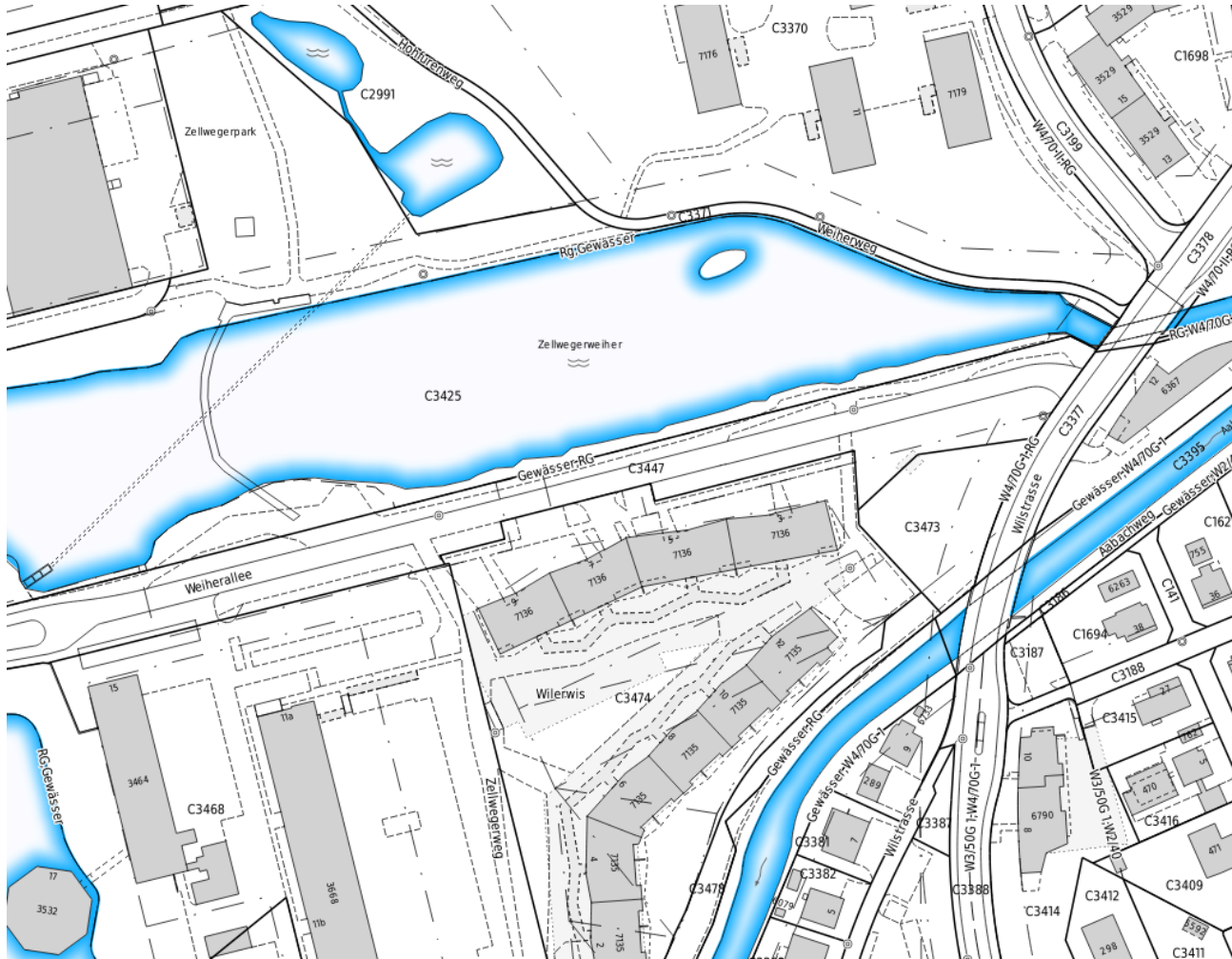
- Shapeburst: Gradient that follows shape
  - Two-color or ramp
  - Supports alpha channel
  - Linear, radial or conical
  - Shade from border to center point or shade only in buffer along borders
  - Opt additional blur effect to reduce spines
  - Optionally ignore holes
  - Supports data-defined properties with expressions
-

# Symbology - Shapeburst Support (2.4)





# Symbology - Shapeburst Support (2.4)



# Symbology - Shapeburst Support (2.4)

---



without blur

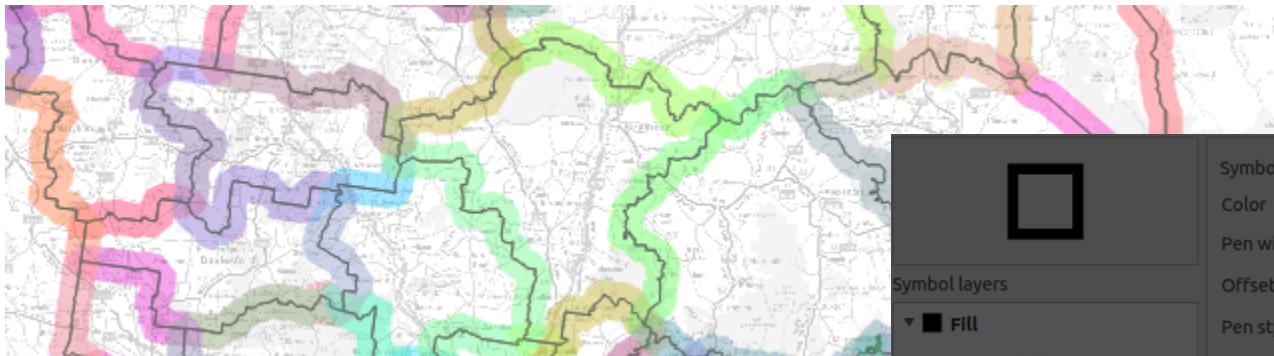


with blur to remove spines

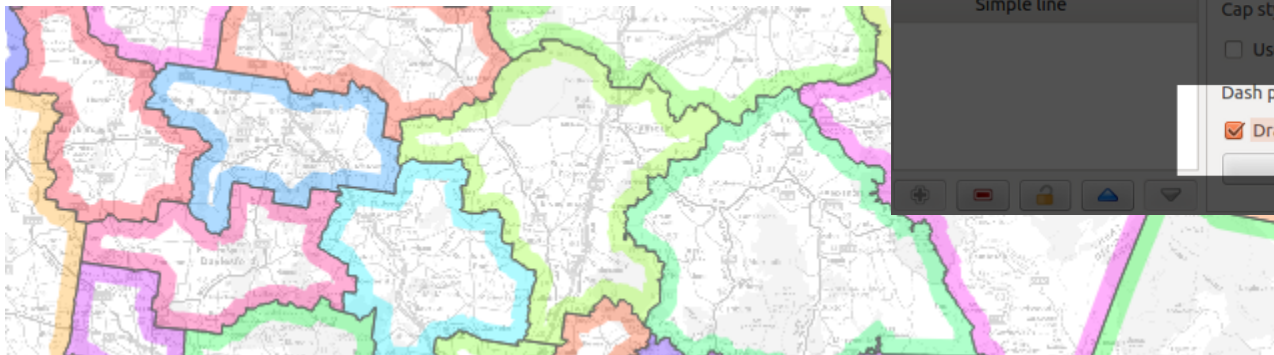
---

# Symbology - Draw line only inside polygon (2.2)

---



Default Centerline



Draw line only inside polygon

A screenshot of a software interface for defining symbology. It shows a preview of a square with a black outline. The 'Symbol layers' list contains 'Fill' and 'Simple line'. The 'Simple line' layer is selected. The properties for this layer are: Symbol layer type: Outline: Simple line; Color: Green; Pen width: 4.50000 Millimeter; Offset: 0.00000 Millimeter; Pen style: Solid Line; Join style: Bevel; Cap style: Square; Use custom dash pattern: Unchecked; Dash pattern unit: Millimeter; Draw line only inside polygon: Checked. A 'Data defined properties...' button is at the bottom.

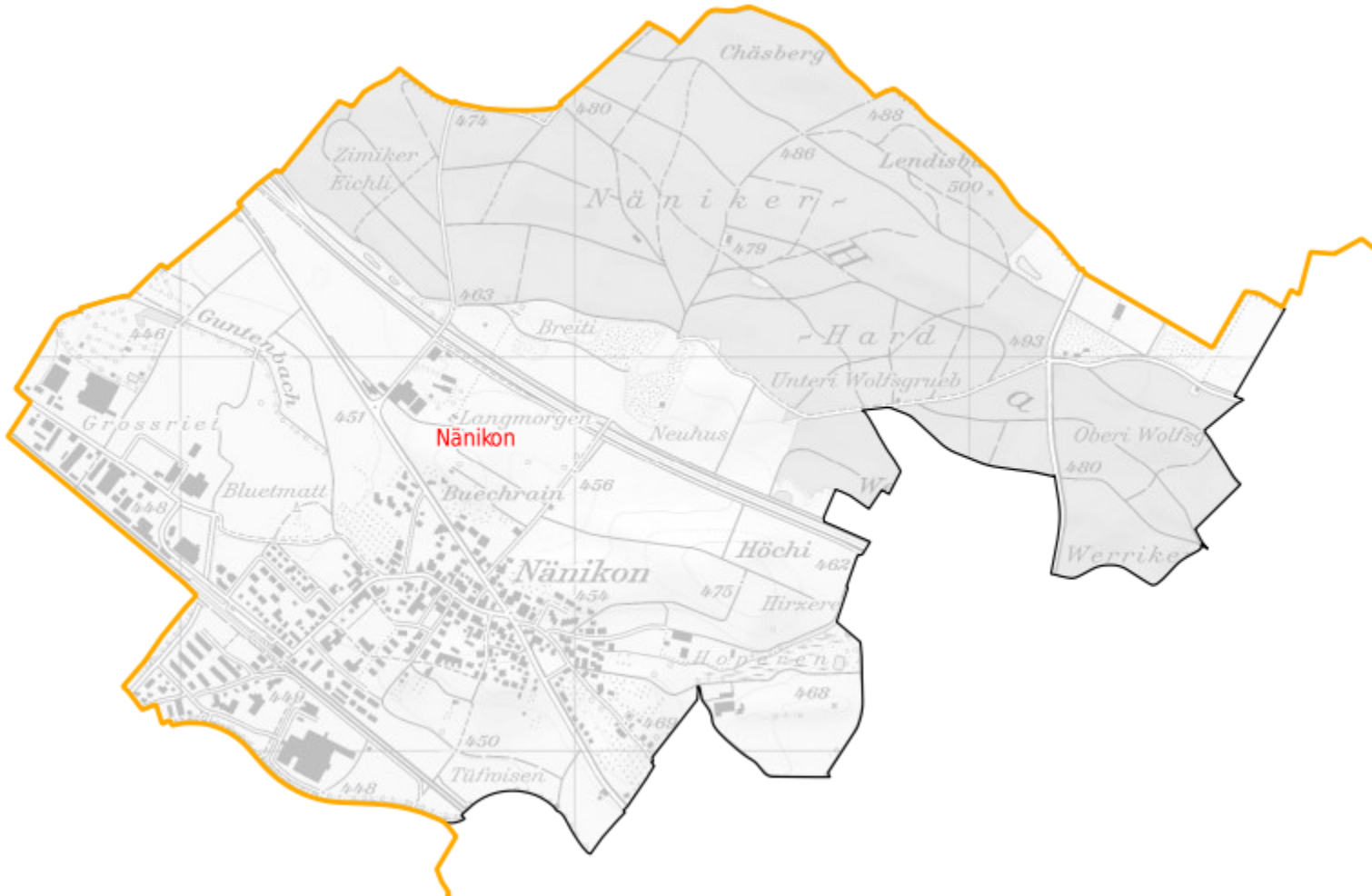
# Symbology - Inverted Polygon Renderer (2.4)

---

- Used to show only certain features and cover others (like cookie cutter)
  - You style everything that is outside of current feature
  - Useful for showing only selected features in layers below
  - Very useful for Serial Printing
-

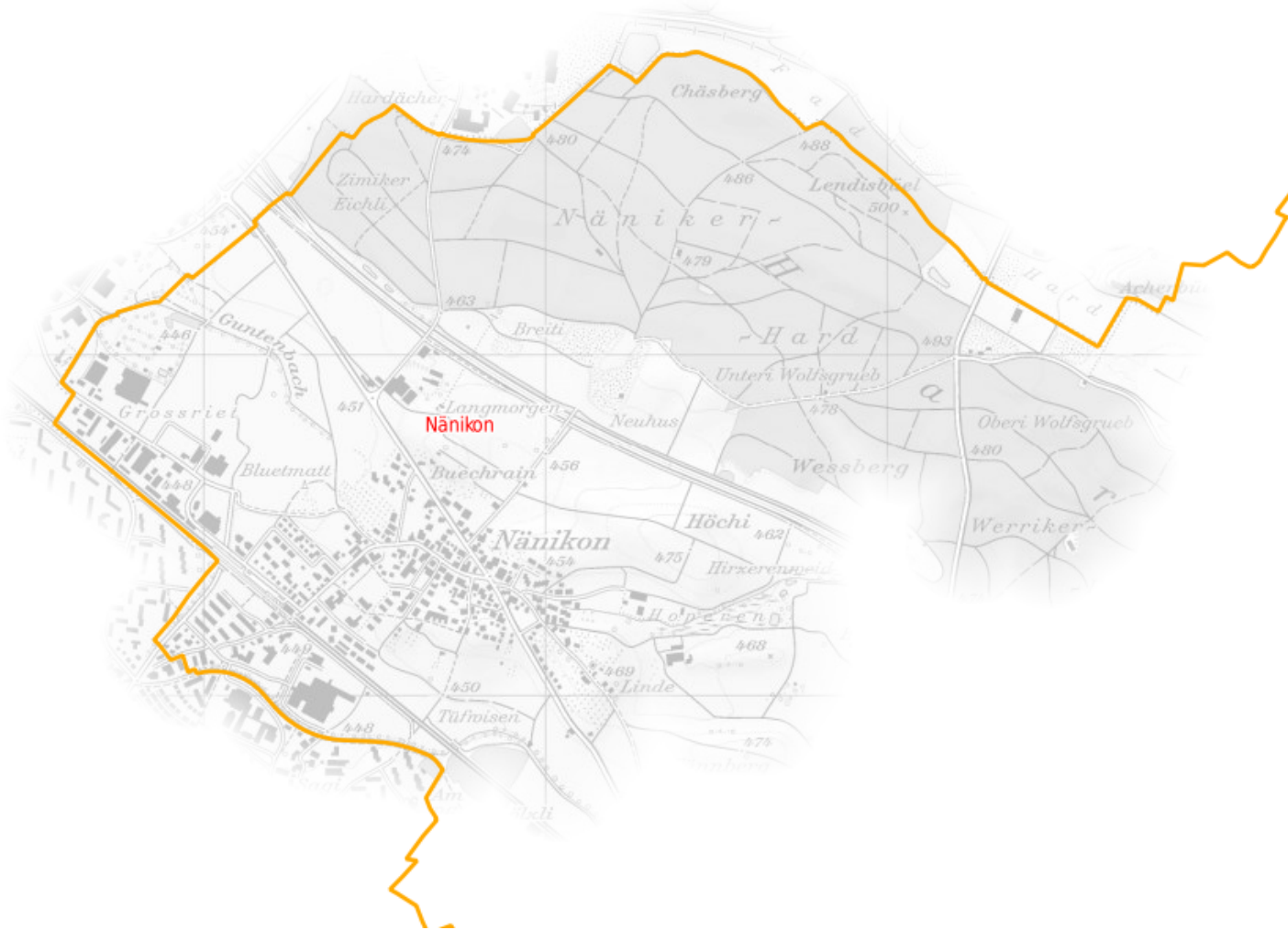
# Symbology - Inverted Renderer (2.4)

---



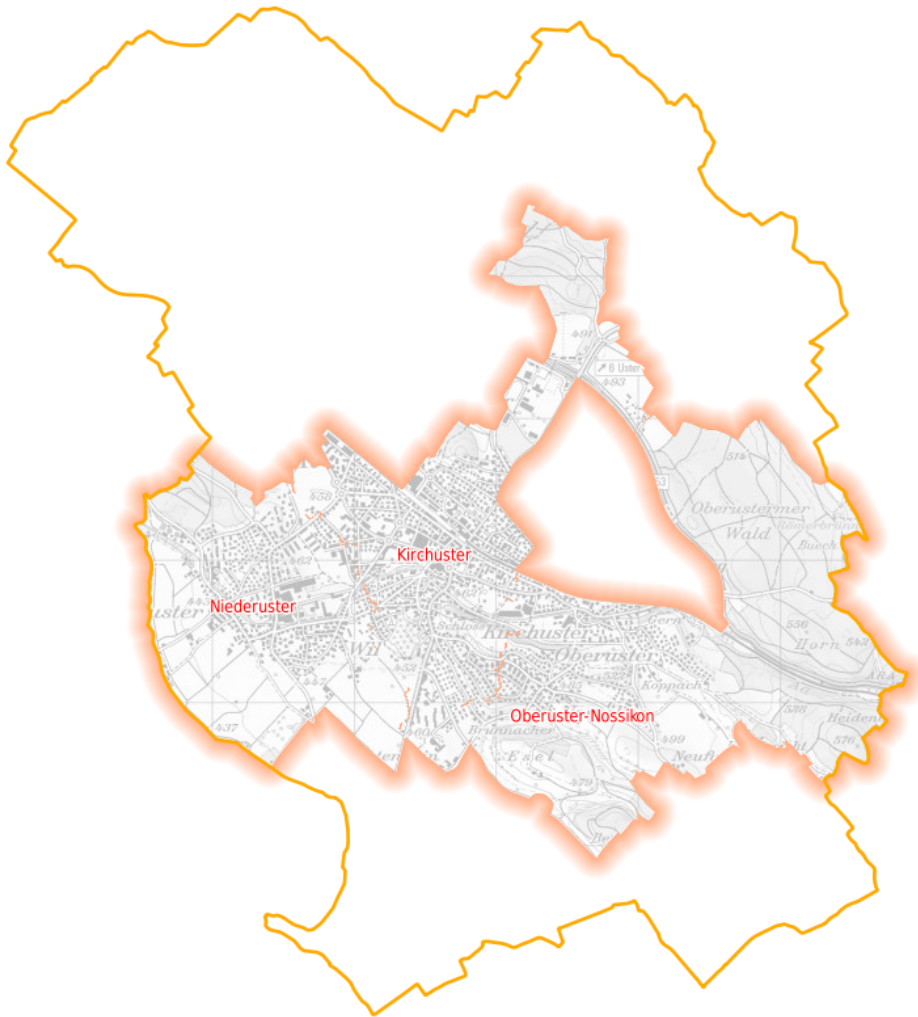
# Symbology - Combination Inverted Renderer and Shapeburst Support (2.4)

---



# Symbology - Combination Inverted Renderer and Shapeburst Support (2.4)

---



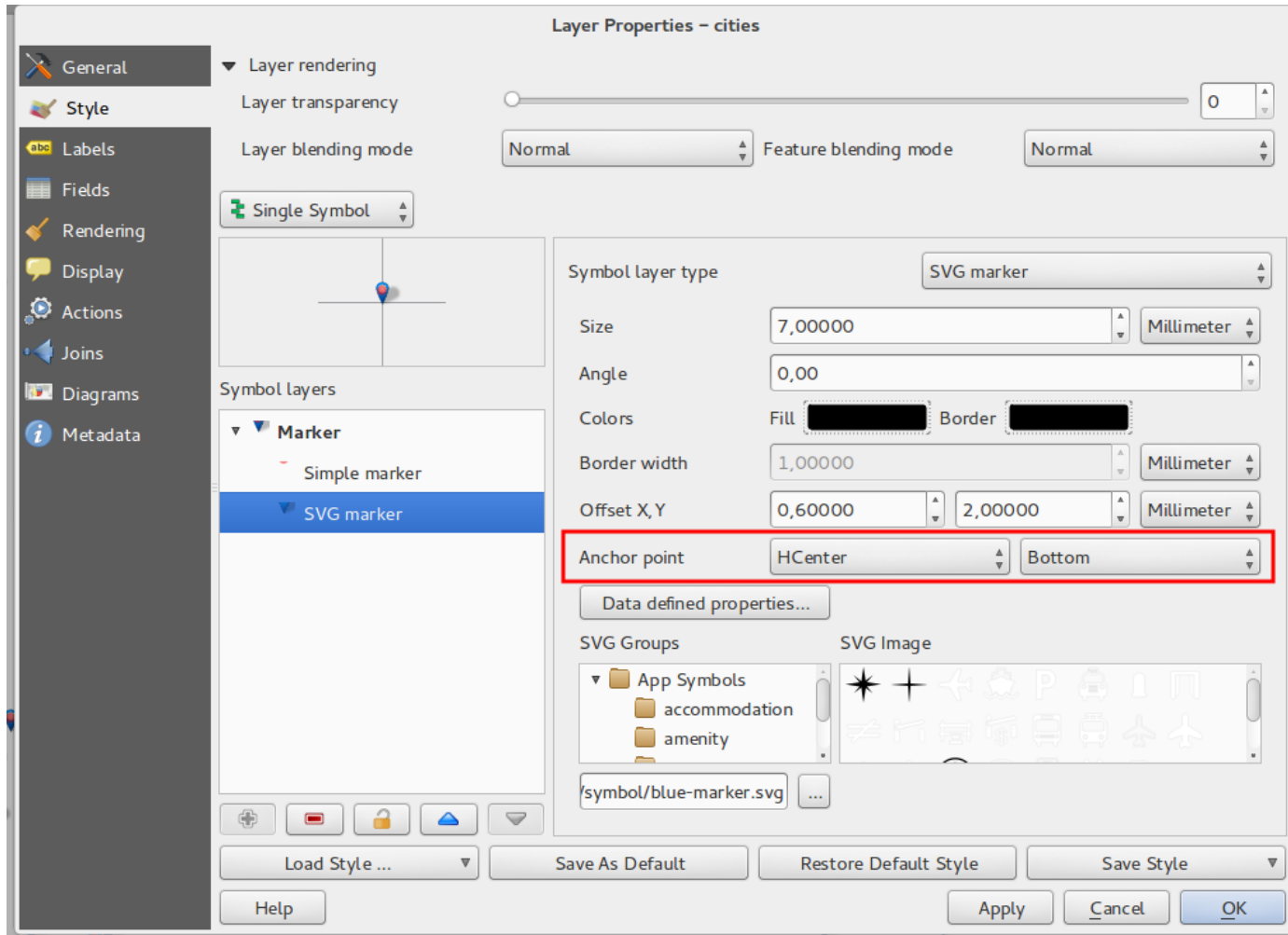
# Symbology - Anchors for Point Symbols (2.2)

---

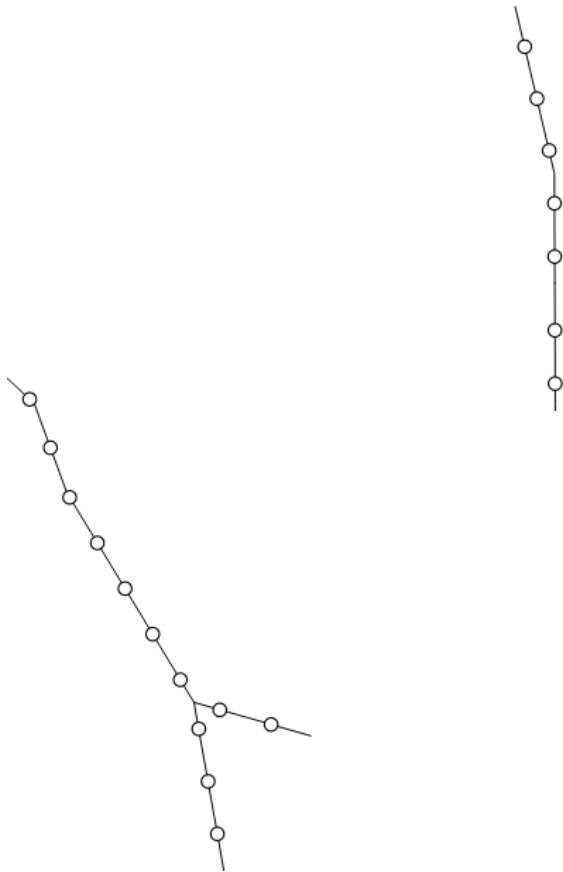
- Previously, symbols were always centered
  - You could use offsets against center point
  - Now you can horizontally and vertically align point symbols
  - Very useful for scalable symbols that should only grow to the top/bottom or left/right
-



# Symbology - Anchors for Point Symbols (2.2)



# Symbology - Marker Line Offsets (2.4)



Layer Properties - hochspannungsleitungen | Style

Single Symbol

Symbol layer type: Marker line

Marker placement

- with interval: 10.00 Millimeter
- on every vertex
- on last vertex only
- on first vertex only
- on central point

Offset along line: 5.00 Millimeter

Rotate marker

Line offset: 0.00000 Millimeter

Data defined properties

Layer rendering

Layer transparency: 0

Layer blending mode: Normal

Feature blending mode: Normal

Load Style ... Save As Default Restore Default Style Save Style

OK Cancel Apply Help

# Symbology - Categorizations based on expressions (2.2)

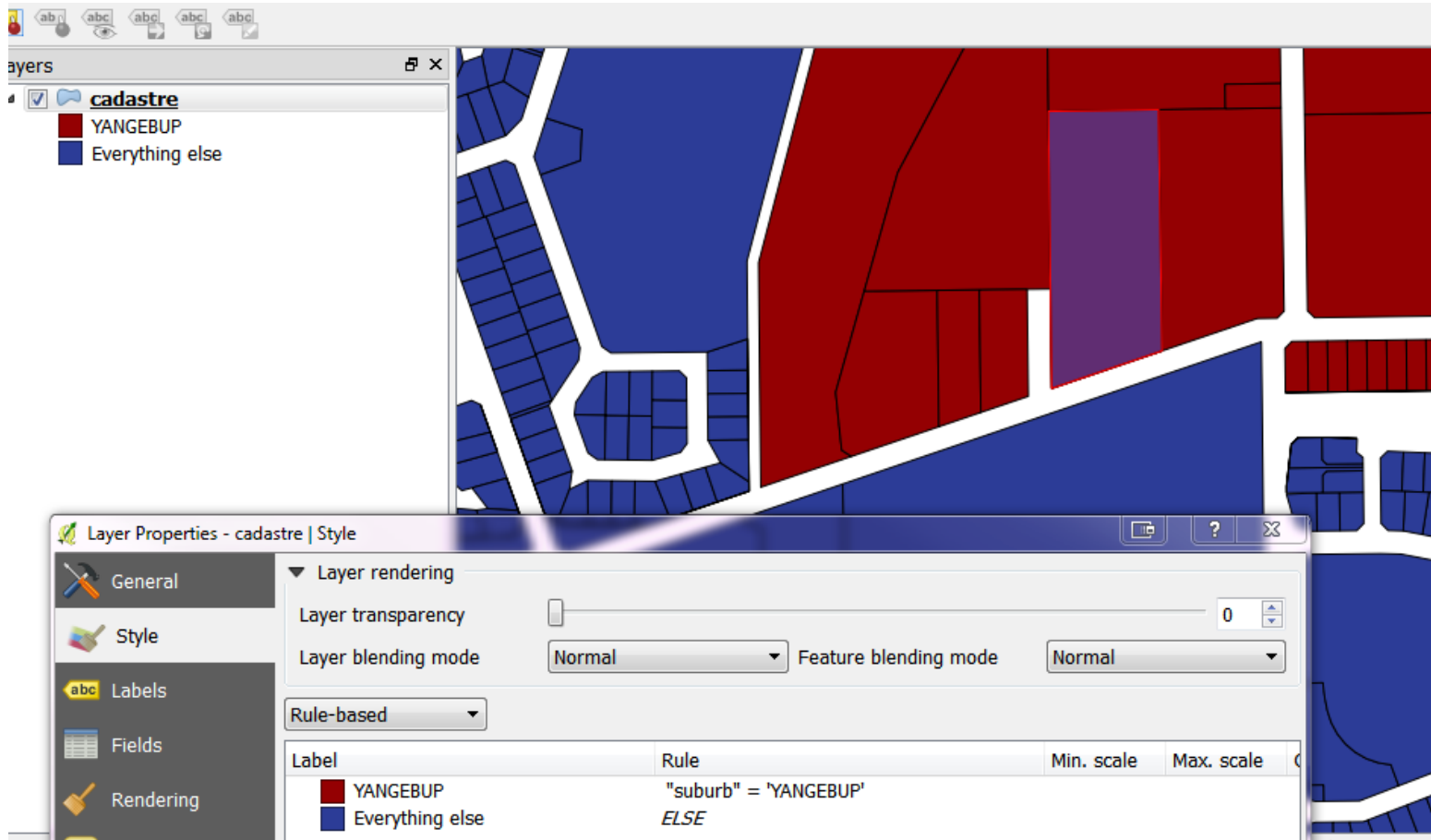
The screenshot shows the QGIS Layer Properties dialog for a layer named 'hkurven\_uep'. The 'Style' tab is active, and the symbology is set to 'Categorized'. The 'Column' is set to the expression: `THEN 'Haupthöhenlinien' ELSE 'Nebenhöhenlinien' END`. The 'Symbol' is a solid line, and the 'Color ramp' is 'Random colors'. Below this, a table lists the categories:

Symbol	Value	Label
—	Haupthöhenlinien	Haupthöhenlinien
—	Nebenhöhenlinien	Nebenhöhenlinien

An 'Expression dialog' is open in the foreground, showing a function list with 'Operators' selected. The 'Expression' field contains the same expression as in the Layer Properties dialog: `CASE WHEN "hoehe" % 50 = 0 THEN 'Haupthöhenlinien' ELSE 'Nebenhöhenlinien' END`. The 'Output preview' shows 'Nebenhöhenlinien'.

Use categorized and graduated renderer with expressions

# Symbology - Else Rule for Rule based Renderer (2.2)



Applied when all other rules do not apply

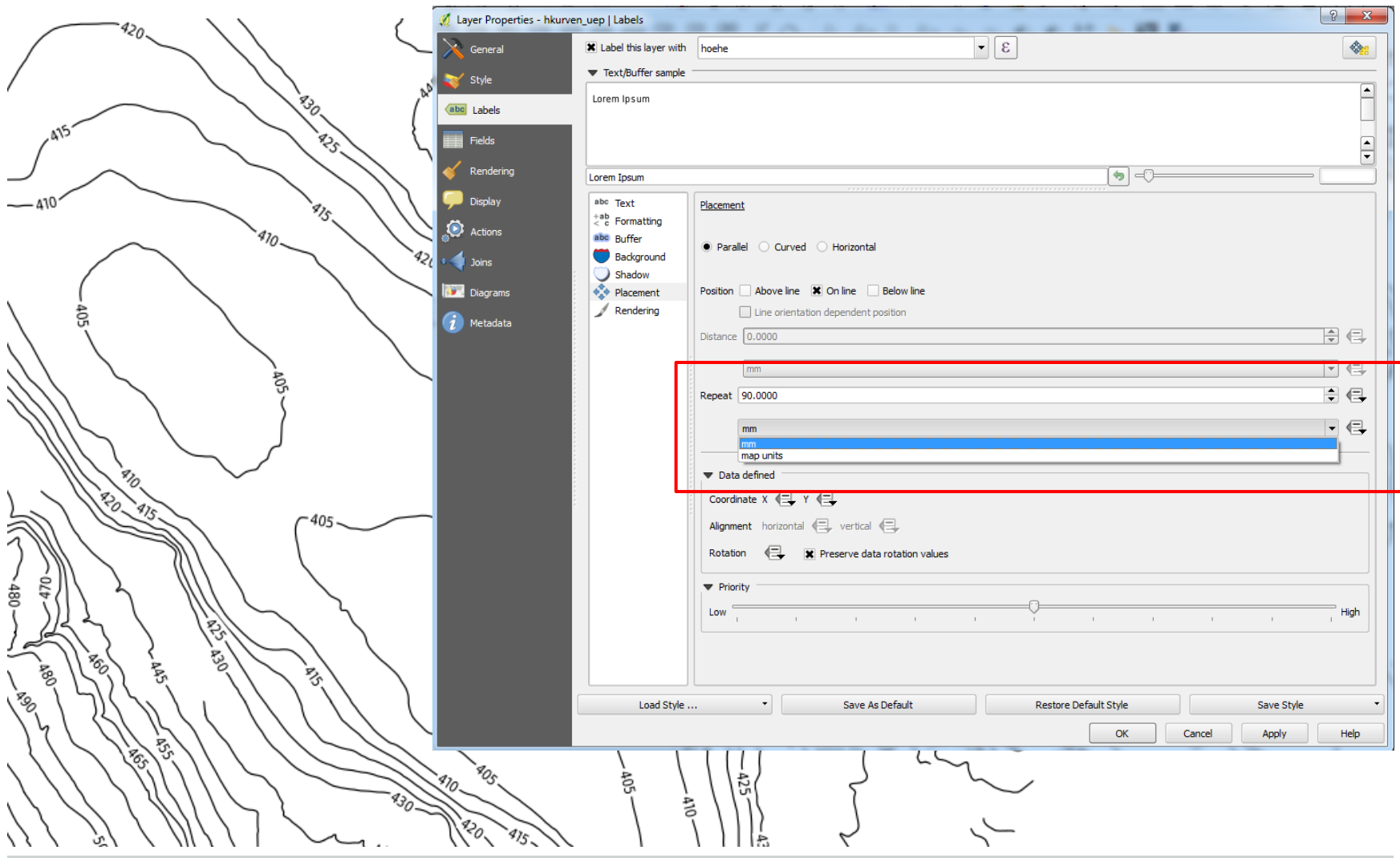
# Labeling Improvements (2.2 + 2.4)

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- Horizontal and Free Labeling for polygons now render faster
- Lines can be repeatedly labeled



# Labeling Improvements (2.2 + 2.4)



# Print composer (2.2 + 2.4)

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- Various improvements to usability
    - Select elements by mouse drag
    - Rectangle zoom, mouse wheel zoom
    - Zoom to actual size
  - Rotation for all map elements
  - Shape styling / canvas styling
  - Grayscale / colour blindness preview
  - Pictures
    - data source with expressions
    - horizontal/vertical alignments
    - sizing modes
  - Better page breaks in HTML frames
-

# Atlas serial printing (2.2 + 2.4)

---

- Atlas preview in composer
  - Support multiple map styles with \$map variable
  - Several atlas controlled maps
  - Pick closest round map scale from provided list of scales
  - More details in the afternoon workshop
-



# Tables - Quick Calcbar (2.4)

Attribute table - hkurven\_uep :: Features total: 834, filtered: 834, selected: 0

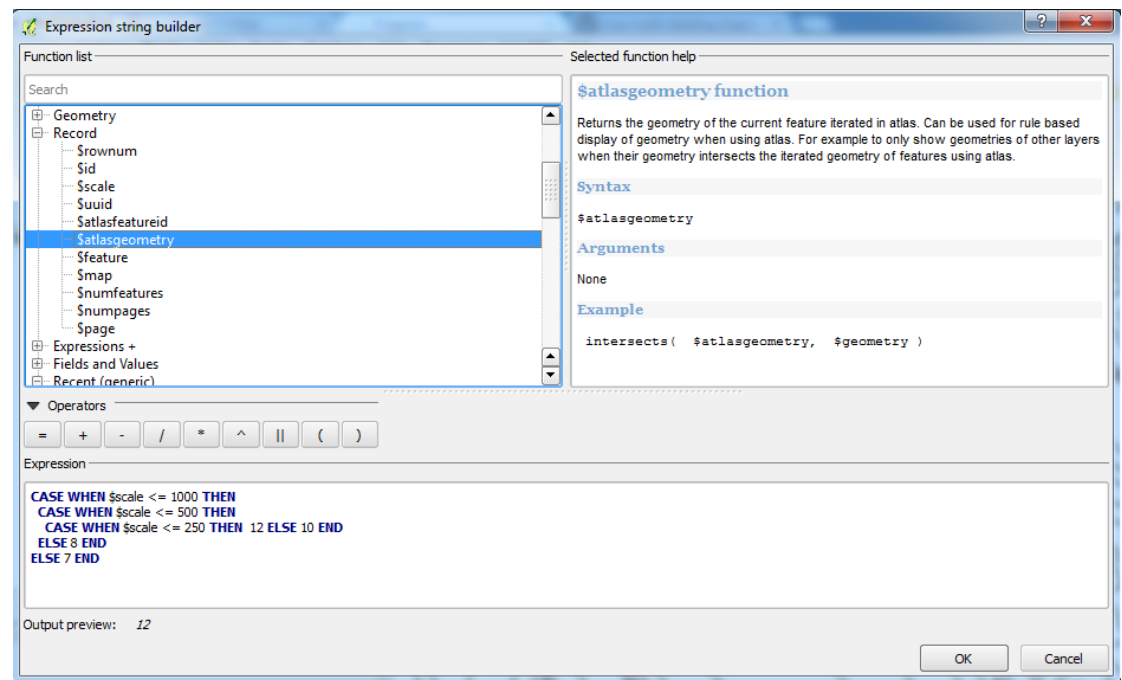
length = € round(\$length,2) Update All

	gid	length	hkurven_id	hoehe
0	1	1829.83	4459	555
1	2	55.05	4481	570
2	3	761.12	4491	475
3	4	141.75	4497	570
4	5	334.11	4501	485
5	6	1095.71	4506	535
6	7	464.25	4509	485
7	8	73.57	4510	485
8	9	165.96	4513	560
9	801	4266.58	30787	500
10	802	6021.2	30788	500
11	14	412.22	4541	535
12	803	4802.31	30831	510

Show All Features

# Expressions Improvements (2.2 + 2.4)

- List of recent expressions
- New expressions for print composer and atlas serial printing - More to come in version 2.6

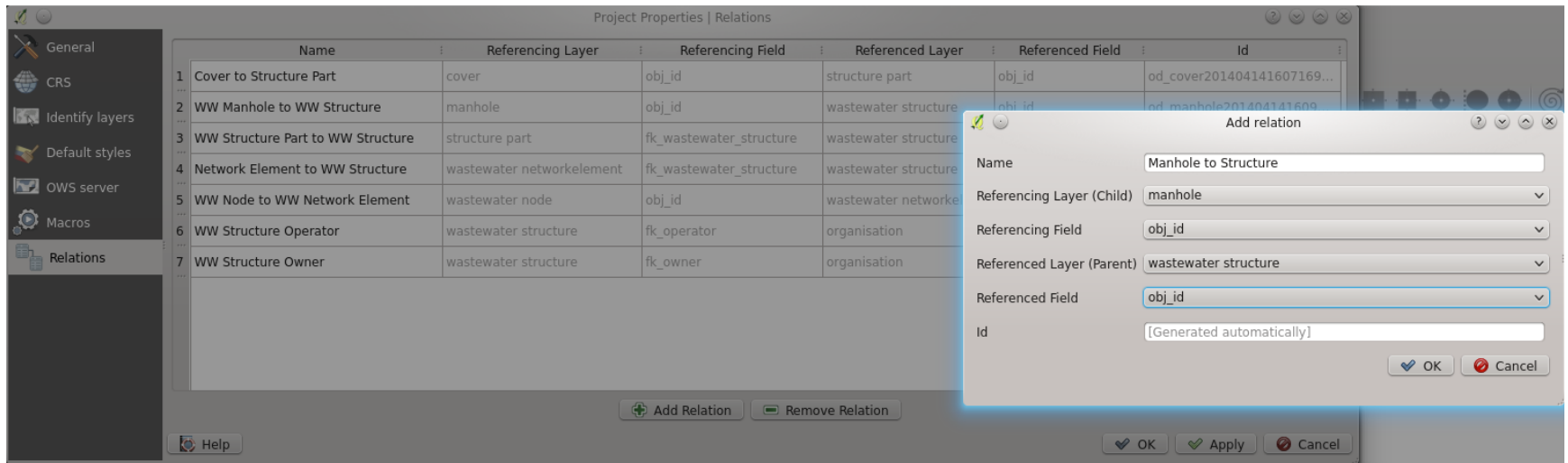


# Forms and relations (2.2 + 2.4)

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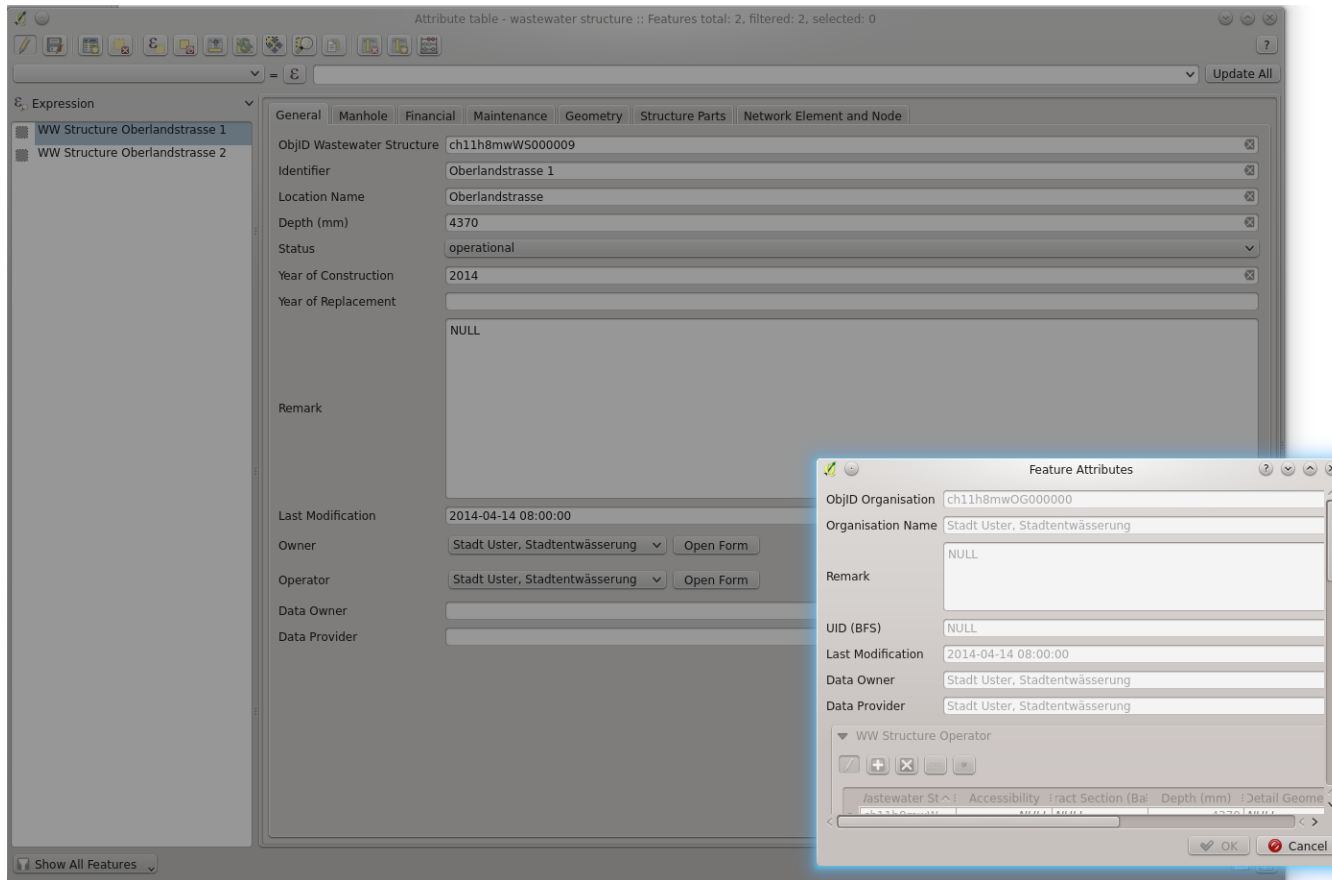
- Relations manager (cross-datasource relations)
  - 1:n relations
  - Relation reference widget
    - open in separate dialogue
    - as embedded form
-

# Forms and relations (2.2 + 2.4)



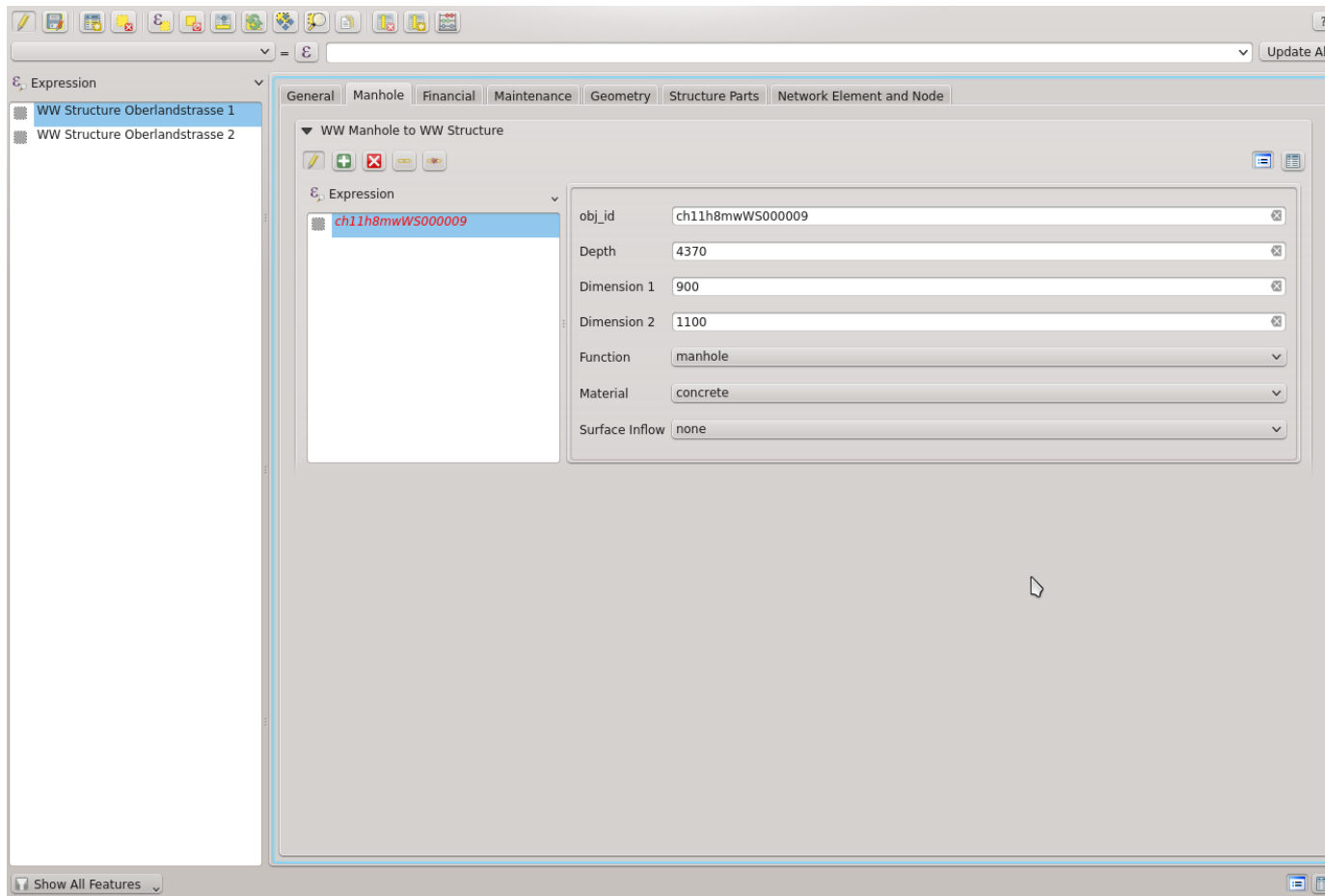
Relations Manager - allows cross-data source references

# Forms and relations (2.2 + 2.4)



Sample with separate form to open (relation reference widget)

# Forms and relations (2.2 + 2.4)



Sample with embedded form (relation reference widget)

# Forms and relations Todo (2.6)

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- more testing
  - integrate joins and relations
  - QGIS Expression to SQL expression translator
  - special mode for 1:1 relations (hide left column since there is only one match)
  - better handling of multi-table edits
  - joins and relations should be better usable in symbology and labeling
  - aggregate expressions
-

# Datum transformations (2.2)

---

- QGIS 2.2: datum transformation configurable
  - NTV2 grid shift transformations can be used
  - Transformation LV03 -> LV95 with CHENYX06a.gsb
  - Configuration options about when user should be asked for datum transformation
-



# Datum transformationen (2.2)

Datumstransformationen wählen

Layer: gemeindegrenzen  
Quell-KBS: EPSG:21781 - CH1903 / LV03  
Ziel-KBS: EPSG:2056 - CH1903+ / LV95

Quelltransformation	Zieltransformation
+nadgrids=CHENYX06a.gsb	
+nadgrids=chenyx06etrs.gsb	+towgs84=674.374,15.056,405.346
+towgs84=674.4,15.1,405.3	+towgs84=674.374,15.056,405.346
+towgs84=660.077,13.551,369.344,-0.804816,-0.577692,-0.952236,5.66	+towgs84=674.374,15.056,405.346
+towgs84=660.077,13.551,369.344,-0.804816,-0.577692,-0.952236,5.66	+towgs84=674.374,15.056,405.346
+towgs84=674.374,15.056,405.346	+towgs84=674.374,15.056,405.346

NTv2

EPSG Transformations Code: 15486

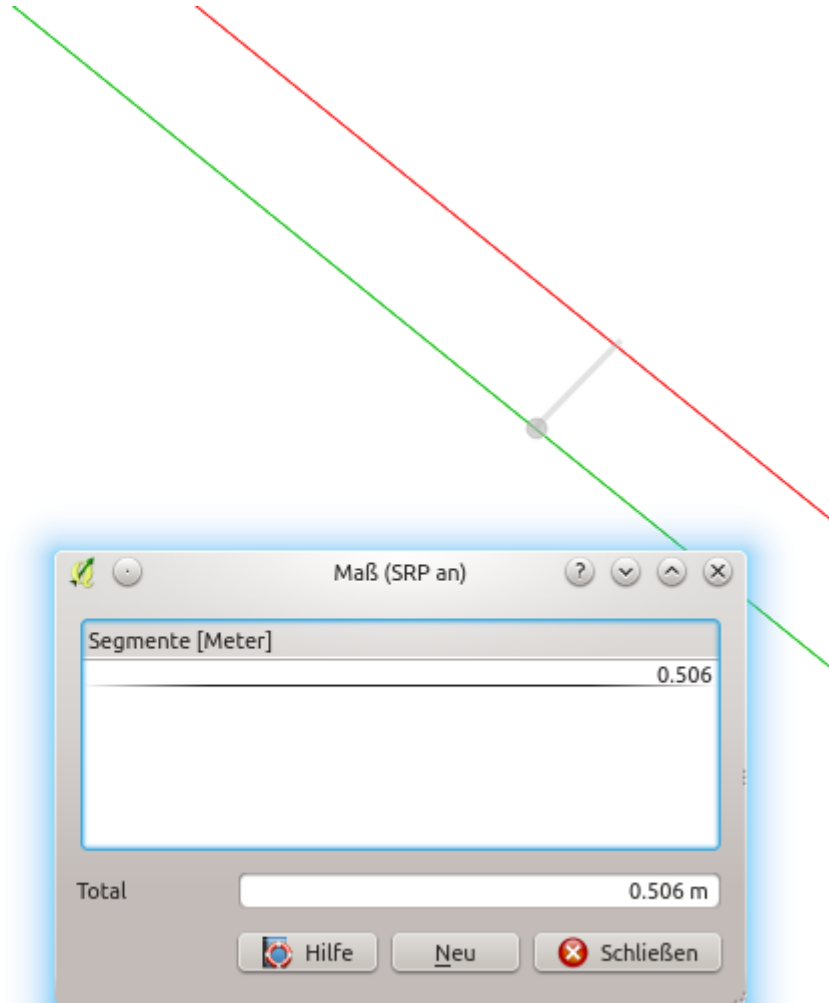
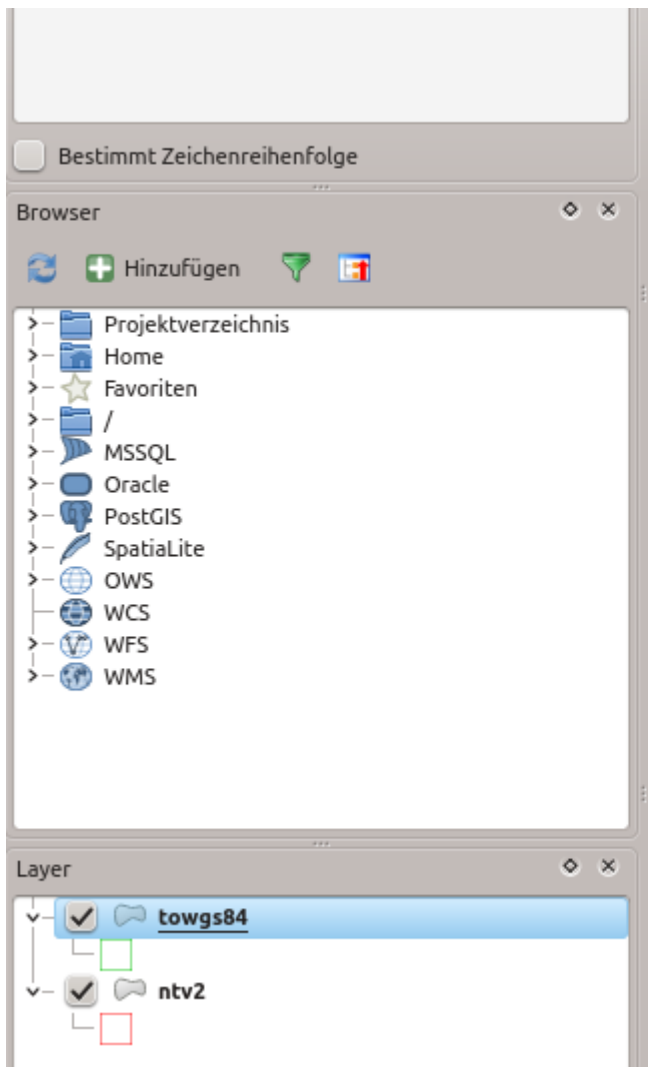
Source CRS: CH1903

Destination CRS: CH1903+

Auswahl merken

Veraltete verbergen

# Datum transformations (2.2)

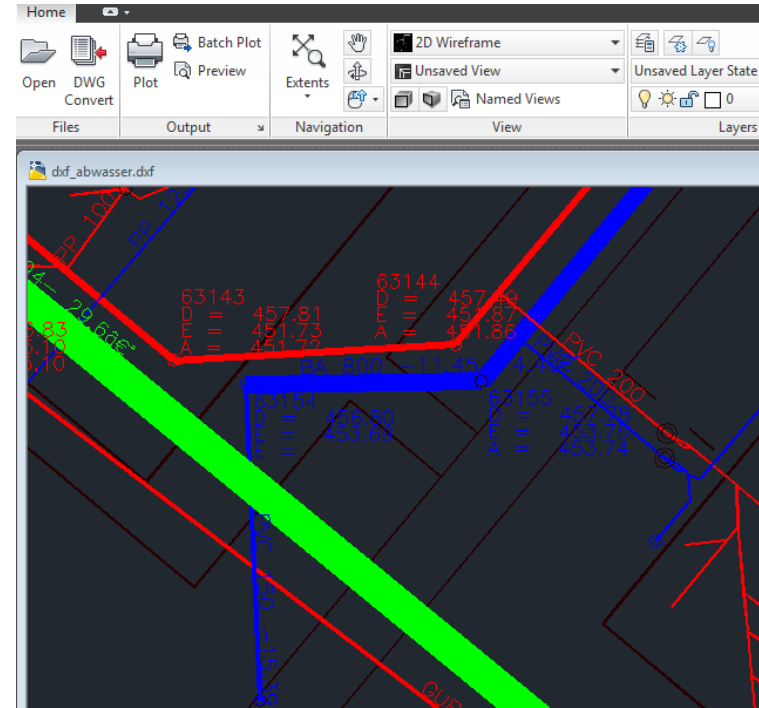
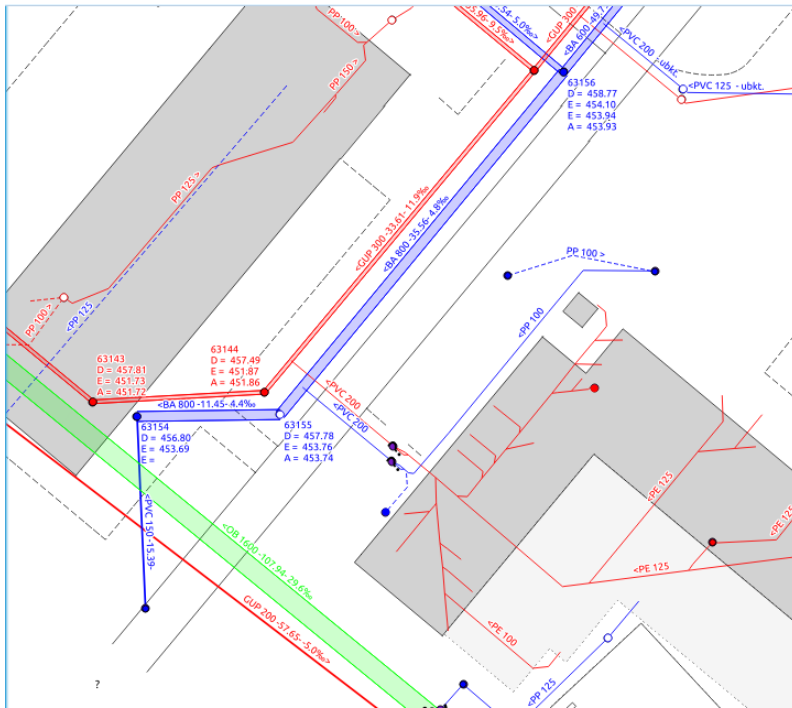


# DXF export (2.2 + 2.4)

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- Native export
  - Considers symbology as much as possible
  - Label export
  - Version: AC1009
  - Pending: polygon fills, probably with solid pattern
-

# DXF export (2.2 + 2.4)



# Under the hood improvements (2.4)

---

- Multithreaded rendering
    - < 2.4: Rendering in GUI-thread, application is blocked
    - 2.4: Each layer renders image in own thread, images are combined
    - Rendering can be canceled before the whole map has rendered
  - Legend redesign -> access to legend for plugins
-

# Credits

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- To all who paid for new features / bug fixing
  - QGIS-CH
  - SIGE
  - Uster, Morges, Vevey
  - Solothurn, Glarus, Basel Land
  - Agence de l'eau Adour Garonne
  - World Bank / Inasafe
- To all who developed the new functionality
  - Nyall Dawson
  - Martin Dobias
  - Jürgen Fischer
  - Marco Hugentobler
  - Matthias Kuhn
  - Sandro Mani
  - Hugo Mercier
  - Denis Rouzaud
  - Nathan Woodrow

list is not complete ...

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