

kadaster



Rebuilding the cadastral map of The Netherlands

*Overall concept and
communication on geometric quality*

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Spatial Data Quality Workshop
January 2020



“Angry neighbour freaking out”



<https://youtu.be/wj8ZuTRA4wc>



Content

- Current cadastral map
- Cadastral Map Next
- Communicating on quality



Current Cadastral map

A complete and
topological
correct index to
the cadastral
registration

7882

7883

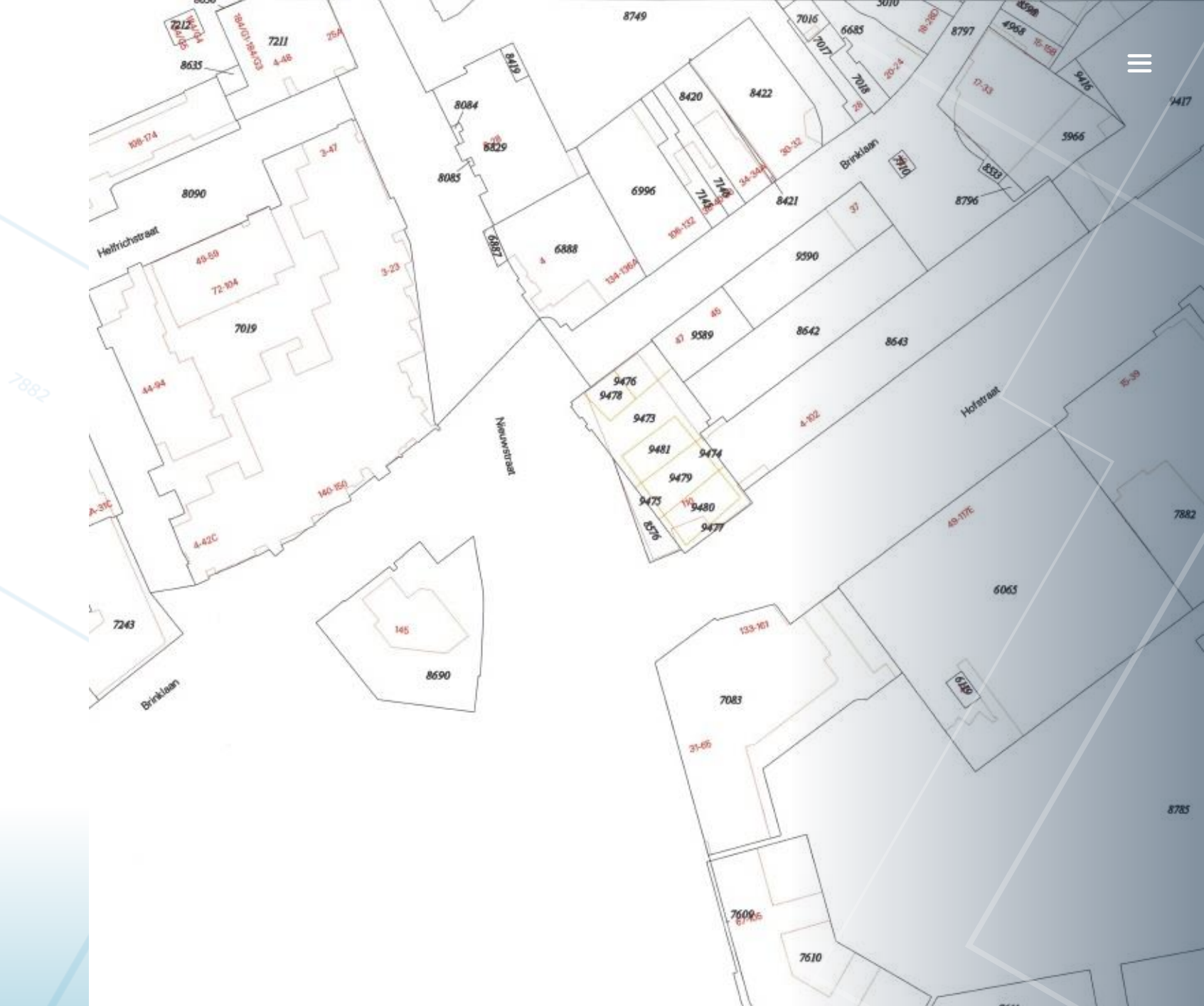
11:46





cadastral map

- Cadastral plot boundaries
- Plot numbers
- Main constructions
- Street names and house numbers.
- Available for free as map or data



field documents

- Sketch of original measurements
- Archived
- For 90% of boundaries we have good quality field documents.
The remaining 10% are only available on the map.

Dien

Nieuwe Nummers:

Niet vernummerd: 1951, 2106, 2023, 2112, 1788

Opdracht N°.

Halifax vol. 23
9/2308

Stietting.

2106

bes & beide

VW66

Stulpsant nr. 24.

1951 VW112
VW54

bes & heide

9/2042

Byron

~~Nothing~~

Helpant no 26
7/2185, 2189. Shilling.

Stietling



Improvement of the cadastral map

What?

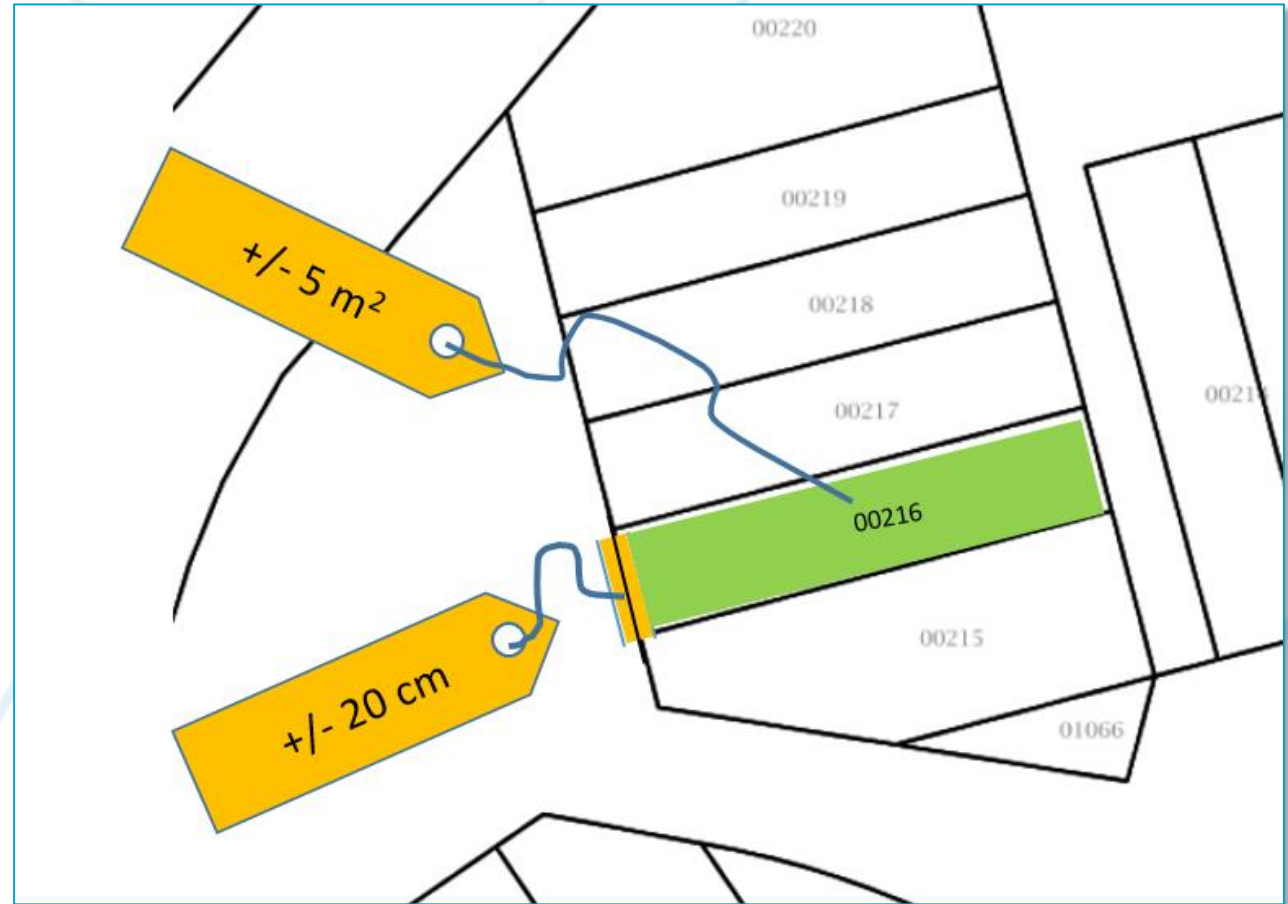
- communication about quality
- improvement geometric quality

Why?

- need to “find your boundary”
- uncertainty about parcelsize

How?

- automatic calculation & mapping
- extended datamodel





Cadastral Map Next: best of both worlds

cadastral map

→ **viewer**

inaccurate & coordinates



field documents

→ **reconstruction**

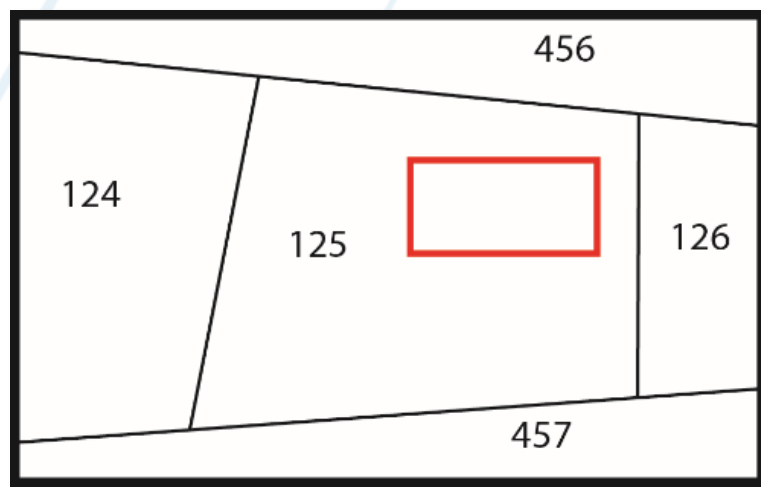
accurate & local dimensions



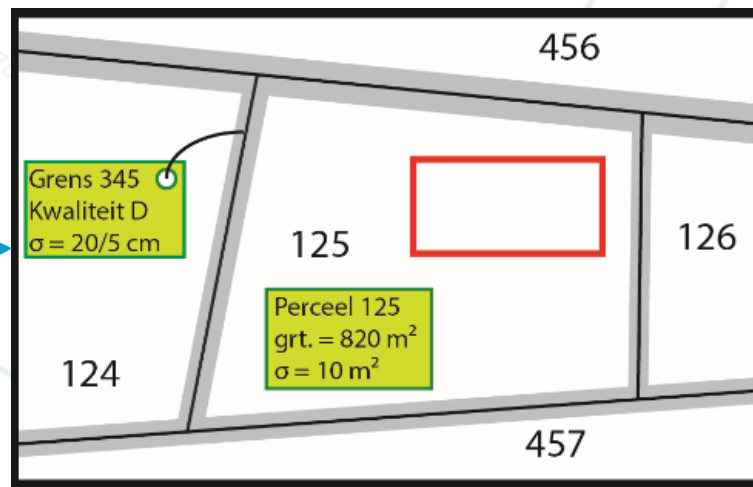
improved map
viewer & reconstruction
accurate & coordinates



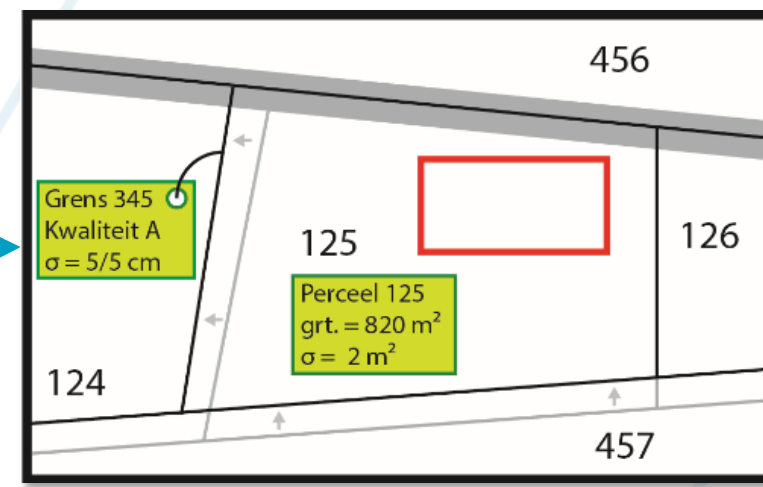
Cadastral Map Next the concepts



**Current
cadastral map**



**Cadastral
information map**
current map with
additional information



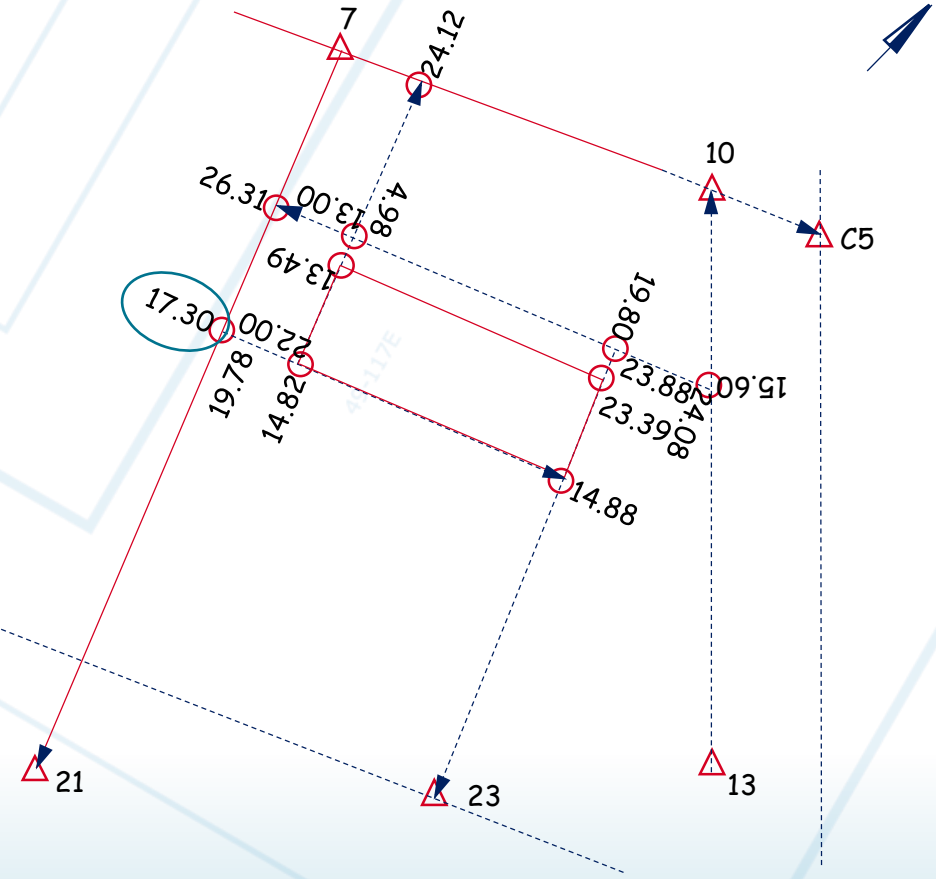
**Cadastral
reconstruction map**
information map with
accurate geometry



Cadastral Map Next the reconstruction map

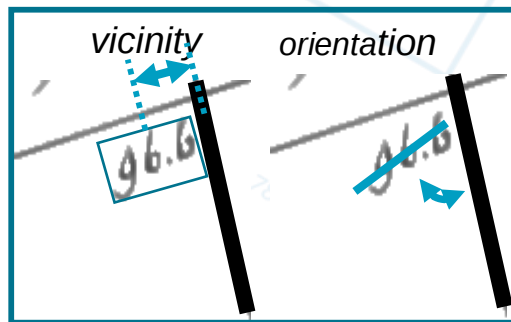
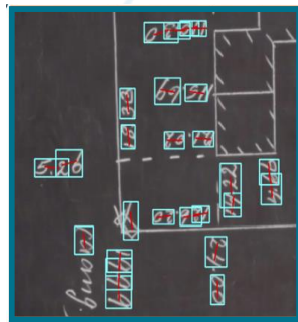
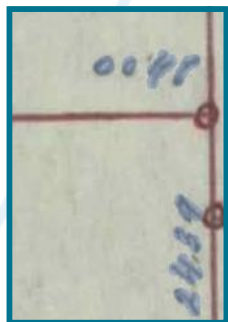
- Vectorising original field documents
- Adjustment and testing of vectorised field documents individually
- Georeferencing and connecting vectorised field documents
- Re-adjustment of the network of vectorised field documents
- Creating the reconstruction map







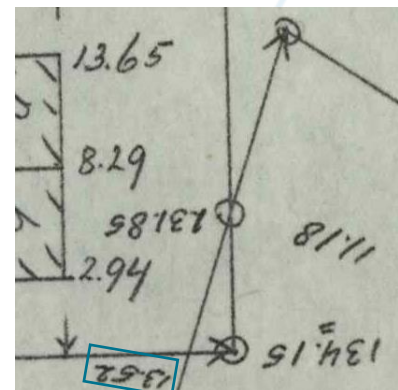
Vectorising: some activities



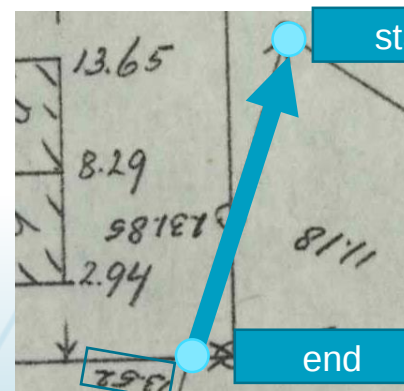
Reading digits

93	←	93	→	48.5	→	415
66	←	66	→	11	→	11
166	←	96.6	→	17.2	→	17.2
151.2	←	151.2	→	24.6	→	24.6
36	←	36	→	24.5	→	24.5
141.6	←	141.6	→	60.6	→	60.6
34.5	←	34.5	→	59.5	→	59.5
30.6	←	30.6	→	09.5	→	045
3.4	←	3.4	→	110	→	1_0
				1.5	→	1.5

meaning



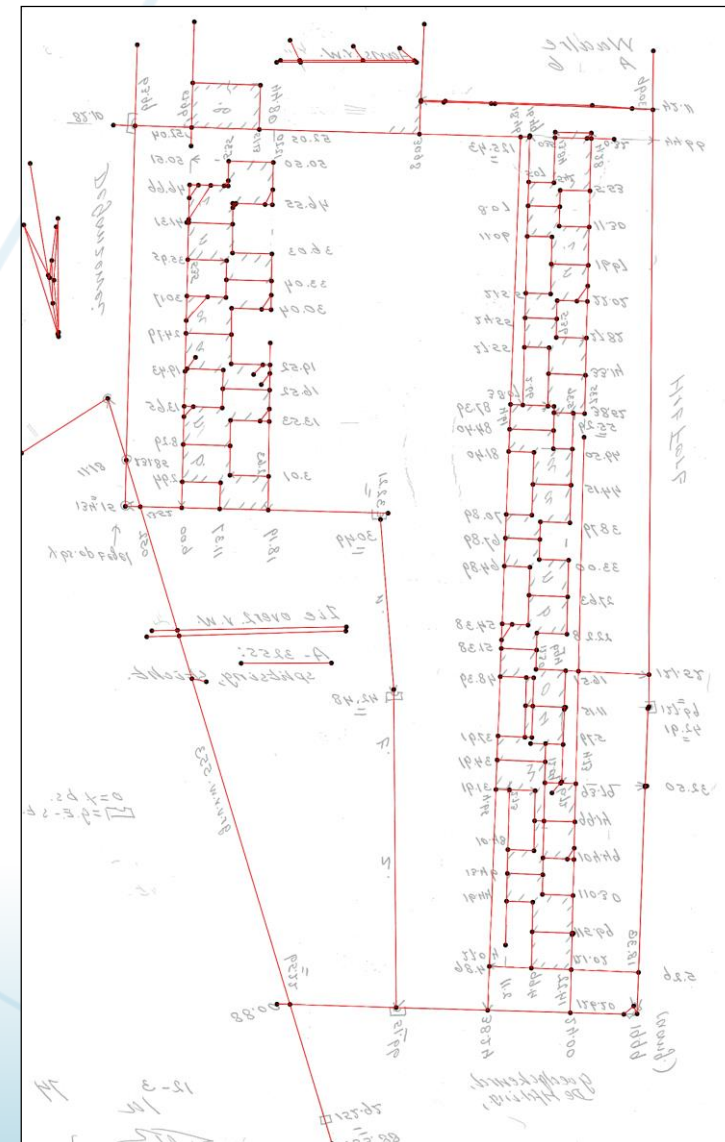
13.52



start

end

13.52



Field sketch WRE02 A 654, user anonymous, version 0.2.0

kad



Re-compute

☐ Autofocus☐ Hide elements

Scan

[/content/test-team/test-20180618/a](#) 

Save changes

GROUPS

points

lines

text

symbols

LAYERS

p1

p2

p3

p4

p5

p6

p7

p8

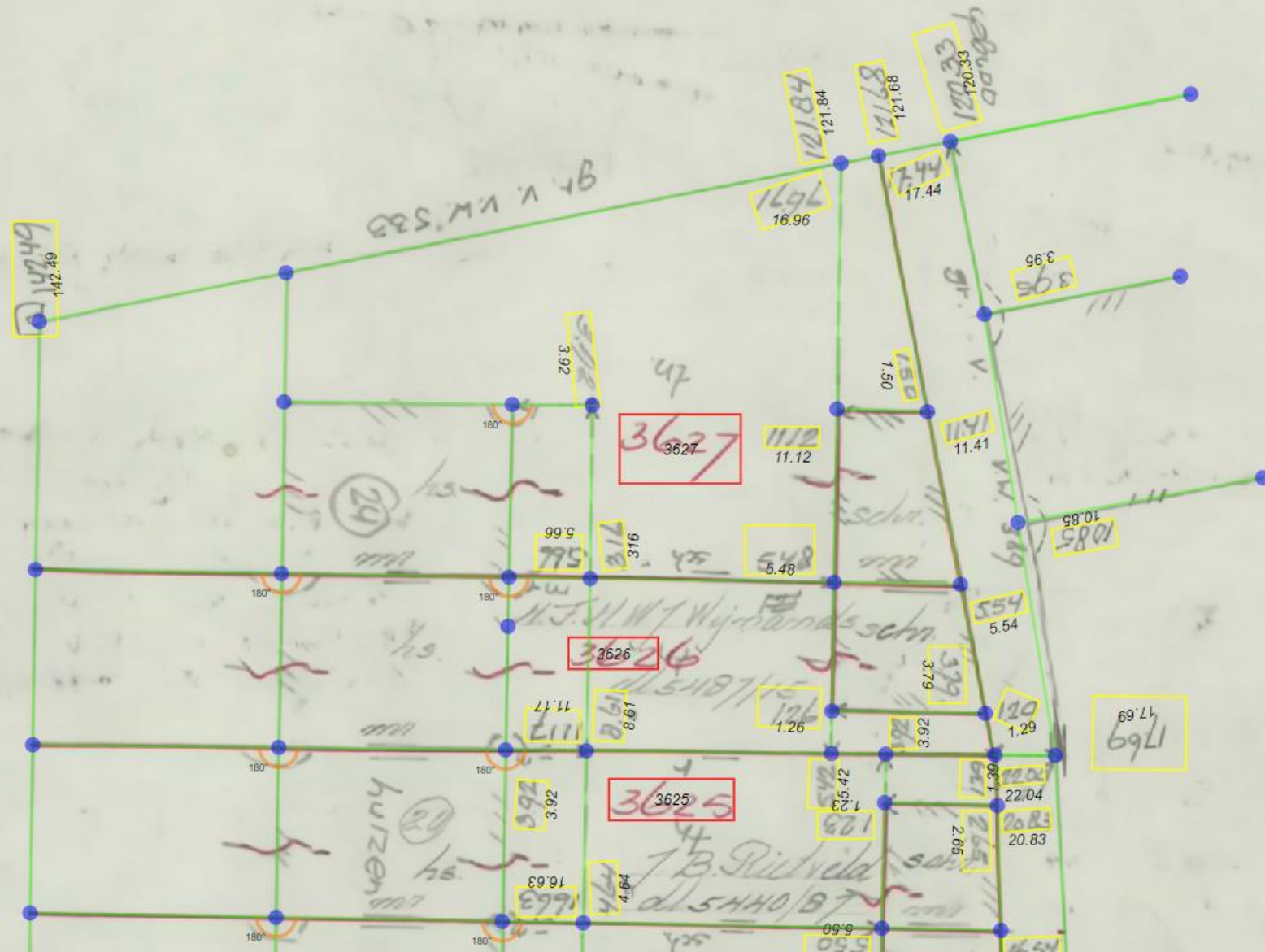
p9

p10

p11

p12

p13





Georeferencing and connecting vectorised field documents

Project: Waalre A 1-op-1

Sketch coupling

+
-
Add sketches Redraw Find buildings Find links Export Move3

Potential fieldsketches

- ☐ VW_WRE02_A_00061_000000061.7
- ☐ VW_WRE02_A_00108_000000107.4
- ☐ VW_WRE02_A_00108_000000107.5
- ☐ VW_WRE02_A_00389_000000393.0
- ☐ VW_WRE02_A_00448_000000459.6
- ☐ VW_WRE02_A_00646_000000661.8
- ☐ VW_WRE02_A_00647_000000662.3
- ☐ VW_WRE02_A_00800_000000818.1
- ☒ VW_WRE02_A_00893_000000915.2
- ☒ VW_WRE02_A_00898_000000925.9

Cancel Save sketches

javascript:saveSketches()

Leaflet

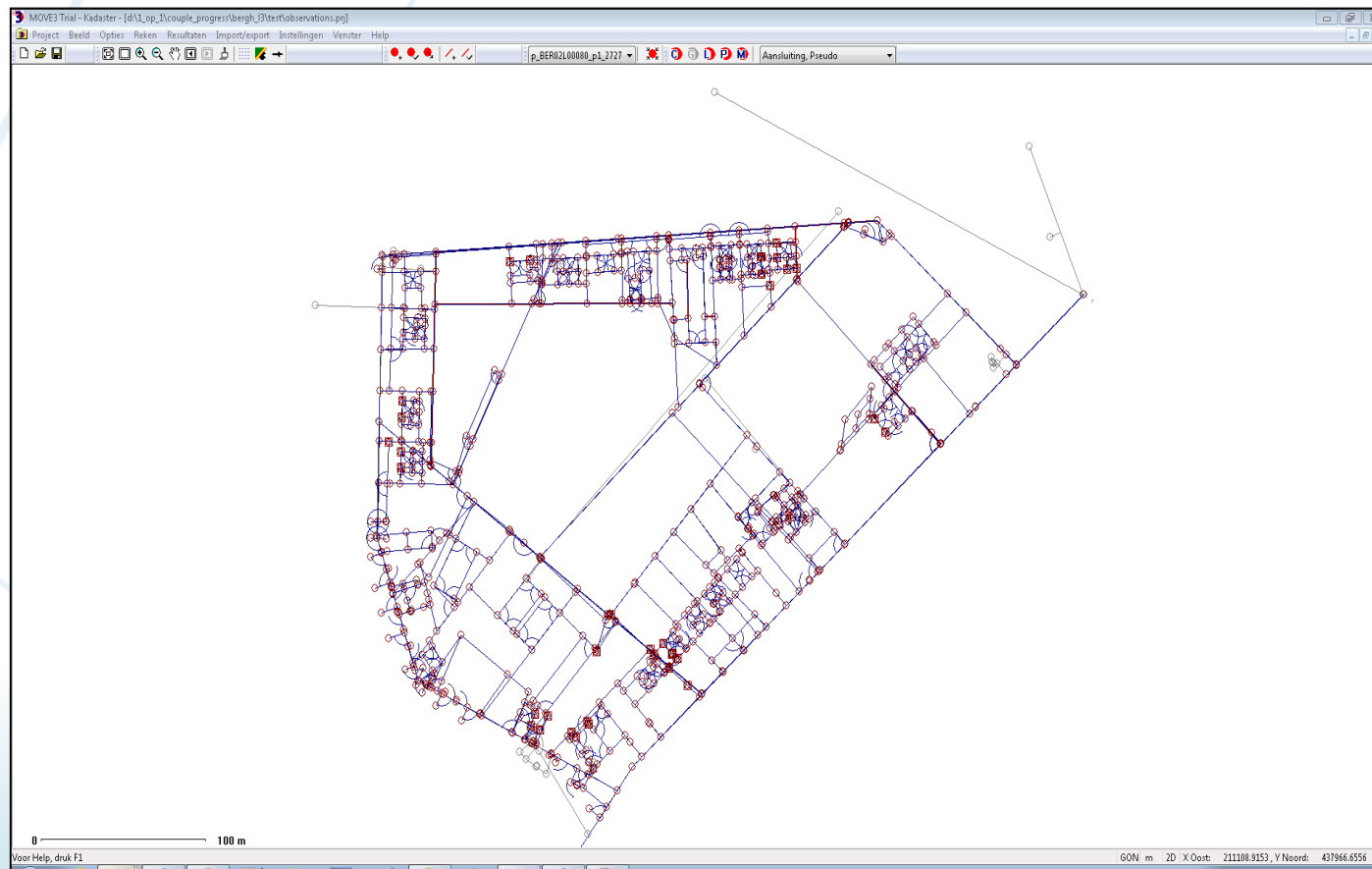


Great result!





Pilot Bergh: 50 sketches combined with high geometric quality (max 4 cm!)





Cadastral Map Next the information map

- Assigning quality information to every boundary
- Creating the information map





Informatiekaart

versie 0.1



Feature informatie

Zoek op locatie

Voer locatie in



Lagen

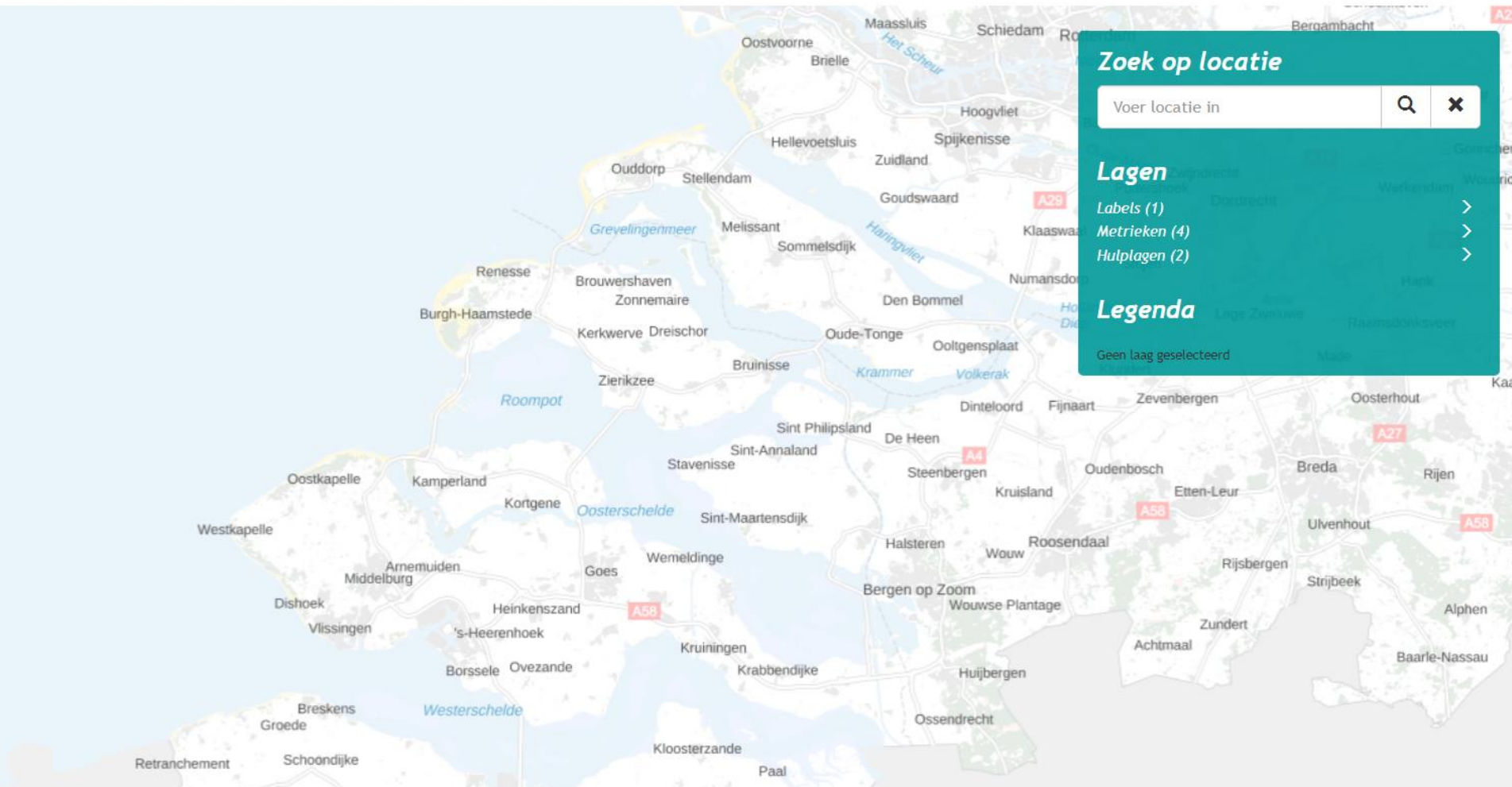
Labels (1)

Metrieken (4)

Hulplagen (2)

Legenda

Geen laag geselecteerd





Informatiekaart

versie 0.1



Feature informatie

Zoek op locatie

Voer locatie in



Lagen

Labels (1/1)

Labels grenzen (1/1)

☒ Labels grenzen

Metrieke (1/4)

TR matching (2)

☐ TR punten

☐ TR segmenten

Oppervlakte delta (1)

☐ CIDB oppervlakte delta labels

Stedelijkheid (1/1)

☒ Bebouwde kom

LKI kwaliteitskenmerk (1)

Hulp lagen (2)

Legenda

Stedelijkheid

☒ Bebouwde kom

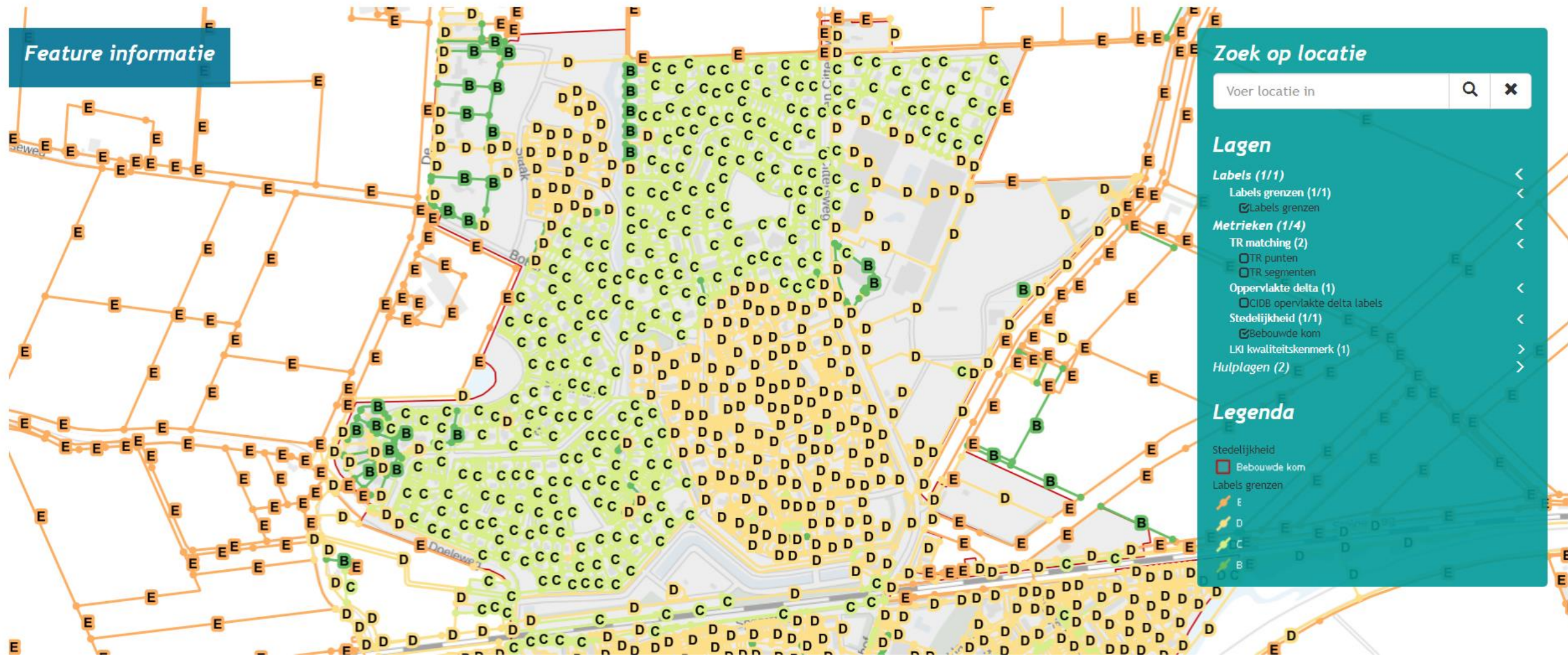
Labels grenzen

☒ E

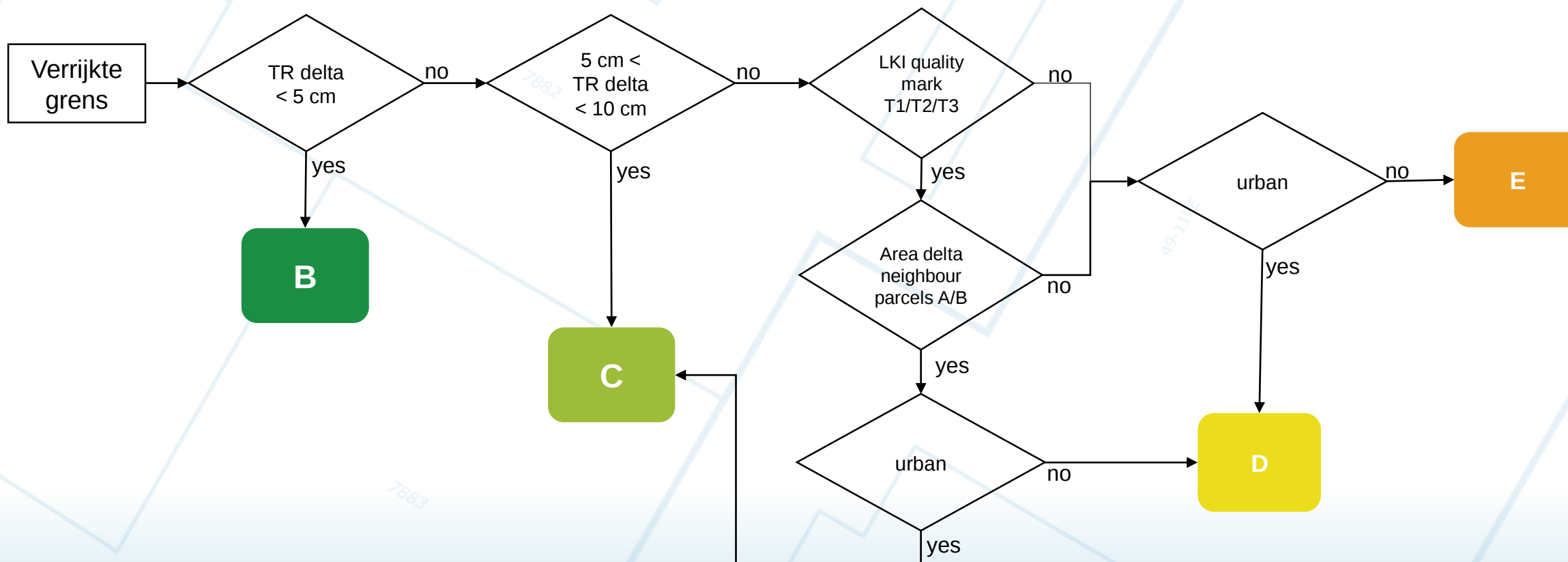
☒ D

☒ C

☒ B



Quality label decision tree



Informatiekaart

versie 0.1

Feature informatie

Zoek op locatie

Voer locatie in



Lagen

Labels (1/1)

Labels grenzen (1/1)

☒ Labels grenzen

Metrieken (4)

TR matching (2)

☐ TR punten

☐ TR segmenten

Oppervlakte delta (1)

☐ CIDB oppervlakte delta labels

Stedelijkheid (1)

☐ LKI kwaliteitskenmerk (1)

Hulplagen (2)

Legenda

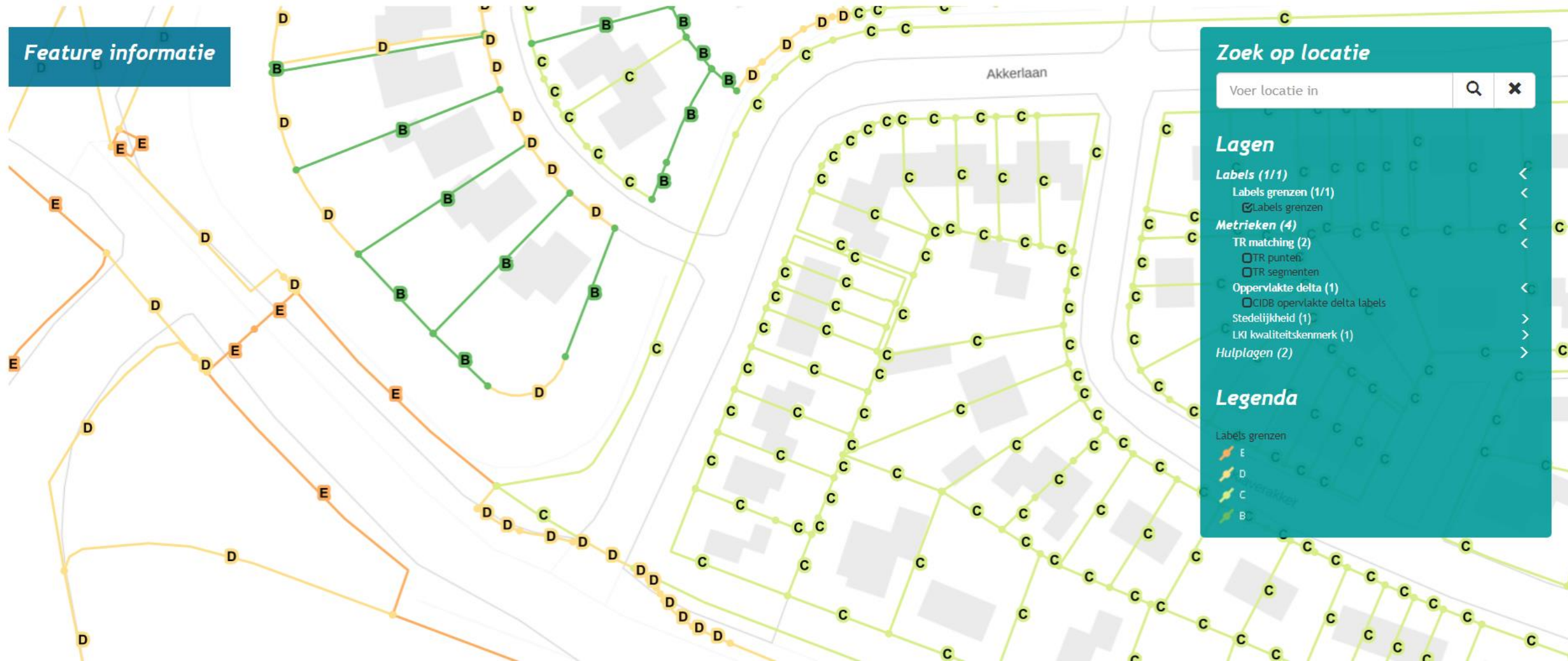
Labels grenzen

E

D

C

B



Information map labels

	Label	σ_{punt} (cm)	$(\sigma_{\text{punt}})^2$ = c_0 (cm ²)	Strook-breedte (+/- cm)	Bereik σ_{punt} (cm)	Verwijzing naar HTW en/of LKI-codering	Nadere omschrijving en verantwoording
1-op-1 exact	A	2	4	4	0 – 3	GPS-kernetnet (blz. 57)	aantoonbare 1-op-1-kwaliteit (!) stedelijk gebied
1-op-1 norm	B	5	25	10	3 - 7	Terrestrisch grondslagelement (blz. 58)	Terrestrische kwaliteit (HTW-96), 1-op-1-kwaliteit universeel
1-op-1 landelijk	C	10	100	20	7 - 15	Fotogr. stereo-kartering, 1:3000 (blz. 59) / LKI klasse 3	1-op-1-kwaliteit landelijk gebied
grafisch bebouwd	D	20	400	40	15 - 30	Vereiste kwaliteit kad. kaart (blz. 53) / LKI klasse 4	Grafische kwaliteit (HTW-96) stedelijk gebied
grafisch landelijk	E	40	1600	80	30 - 60	Vereiste kwaliteit kad. kaart (blz. 53) / LKI klasse 5	Grafische kwaliteit (HTW-96) landelijk gebied
historisch	F	80	6400	160	60 - 250	LKI klasse 6	Schatting kwaliteit op basis van kaartschaal 1:2500
grove fouten/ onbekend	G	-	-	-	250 - ∞	LKI klasse 7	Ook te gebruiken voor voorlopige & admin. grenzen

Communication on quality



colors

fuzzy lines



labels



documentation



description





Communication on quality – a description

A map boundary in urban areas is currently half a meter wide, in the reconstruction map it will be a decimeter.

In rural areas a cadastral boundary is a meter wide or even more for historical boundaries.





“Angry neighbour freaking out”





WORKING WEEK 2020
10 – 14 MAY

Cadastral Map Next, the overall concept

Cadastral Map Next, A.I. inside

Cadastral Map Next, the geodetic concepts

Smart Surveyors for Land and Water Management



kadaster



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