

Digital storing the (I)nformation

AIM-løsning for Nye Veier

BA-Nettverkstreff

5/9-2019

Jan Erik Hoel, Trimble

Agenda

1. Kort om prosjektet
2. Løsningsarkitektur – Dataflyt
3. CoClass implementasjon for Ranheim - Værnes
4. Klassifisering i Novapoint basert på CoClass
5. Web-portalen

Kort om prosjektet

Pilot forvaltningsløsning – «Asset Information Model»

Oppdragsgiver: Nye Veier – Trøndelag

Leverandør: Triona med Trimble Solutions – Sandvika som underleverandør

Prosjekt start: 21/2-19

Prosjekt slutt: 1/10-19

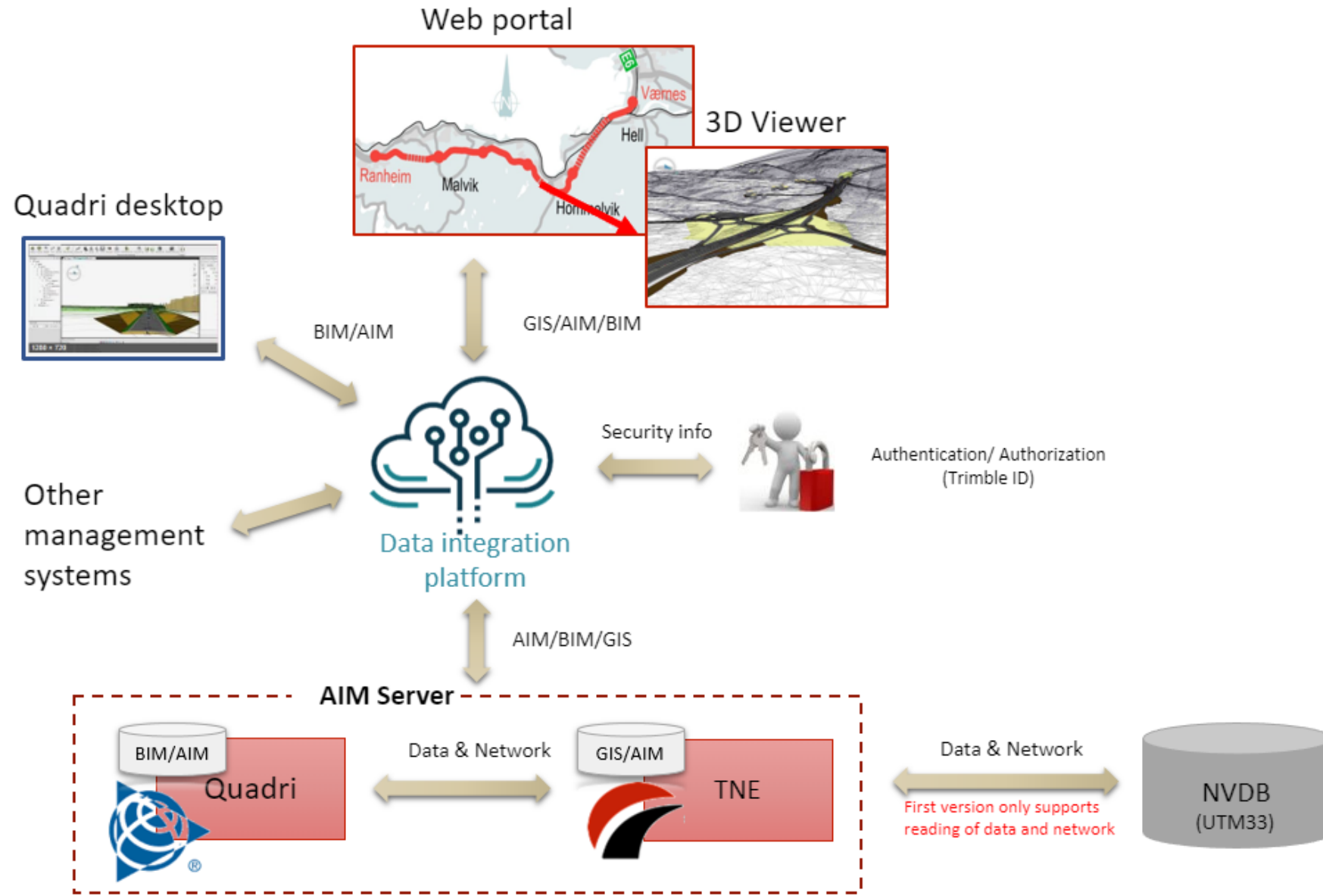
Sluttprodukt:

- Quadri og TNE installasjon på dedikert server
- Web-portal
- Zip-pakket Novapoint versjon med bl.a. støtte for CoClass klassifisering – vil inngå i offisiell Novapoint 22 release.

Skal benyttes på:

- Ranheim – Værnes
- Kvål – Melhus
- Kvithamar - Åsen

Løsningsarkitektur Dataflyt

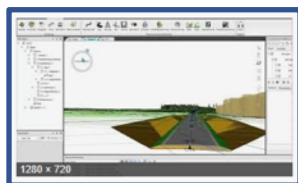


2) CoClass importert med web-service fra Svensk Byggtjænst

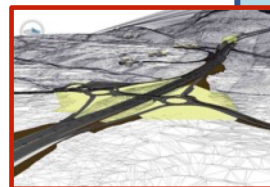
1) Ferdig klassifiserte forv. obj. importeres som filer eller gjennom Quadri-til-Qudri overføringsl sningen

Quadri Desktop

3) Anleggsnettverk skapes og vedlikeholdes i QD



3D Viewer



Web portal



9) Web portal: Oppgavetre, TrimBIM views og Quadri, NVDB data, NV data

Tegnforklaring:



7) Datakataloger: AIM, GIS og NVDB

8) Flere endepunkter (API) med felles p logging

Q API

REST API

REST API

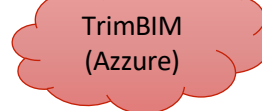


Autentisering/
Autorisering



Quadri

5) Generering av TrimBIM filer



* BIM modeller

4) Nettverk, datakatalog og «lokasjonsobjekt» overf res gjennom OpenTNF



TNE

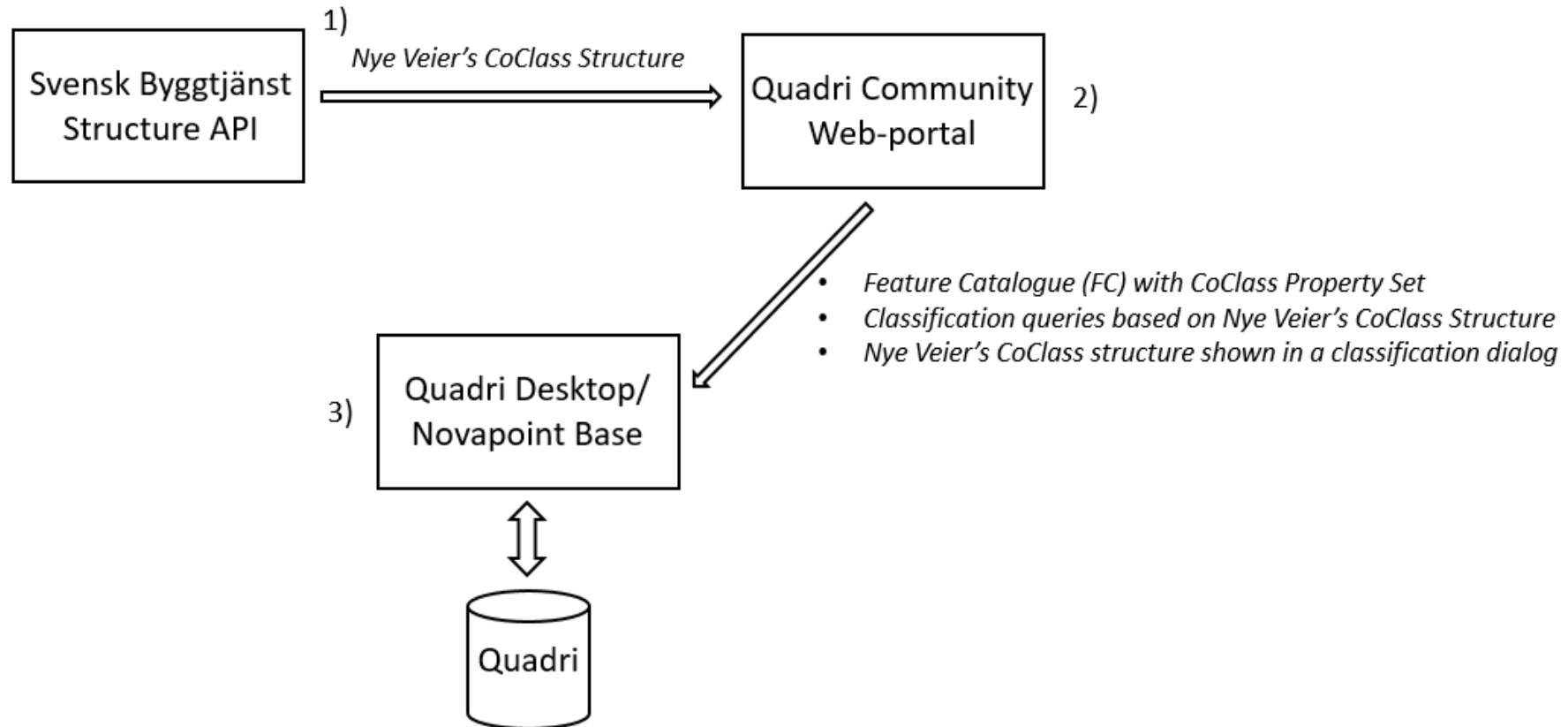
* Nye veier lokasjoner
* NVDB vegreferanser
* NVDB objekter
* Objektdef for asset system
* WMS & WFS (Kartserver)

6) NVDB Nettverk & Data (F rste versjon st tter lesing av data)

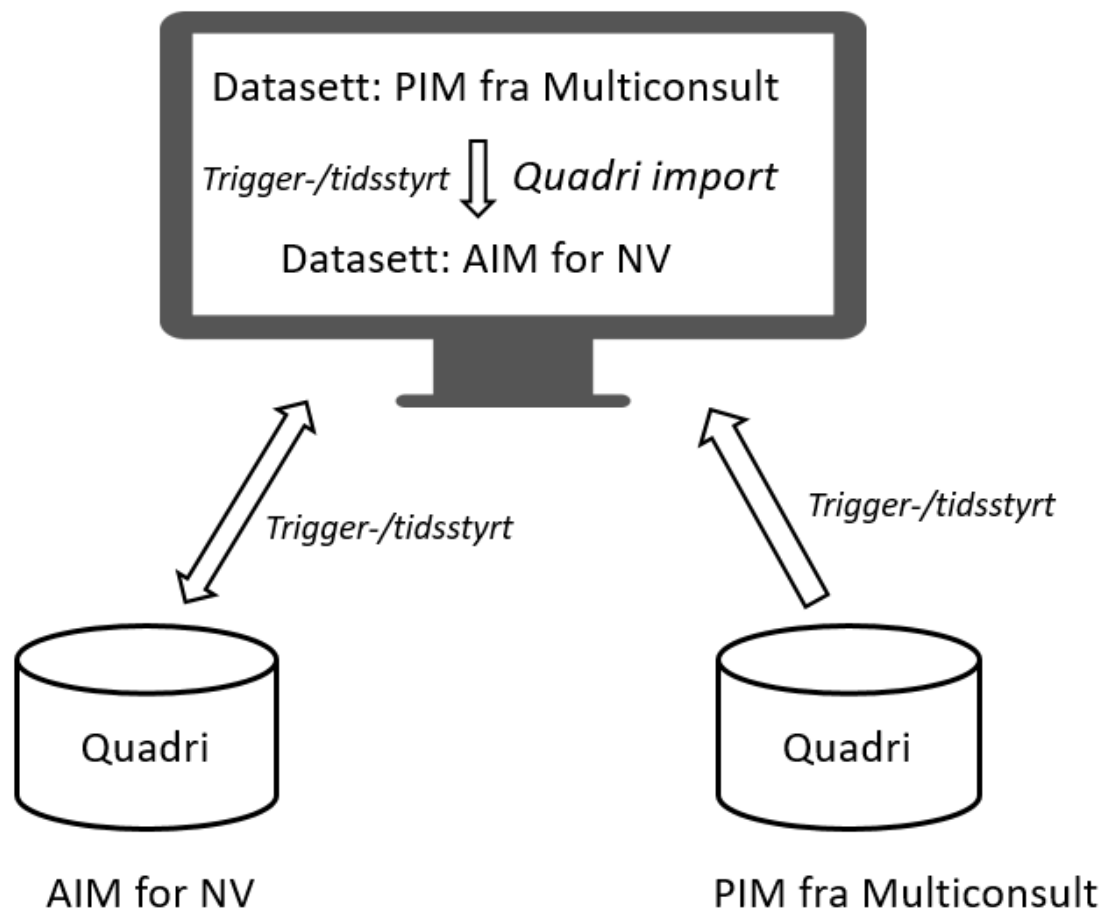


NVDB

Datflyt for CoClass strukturer

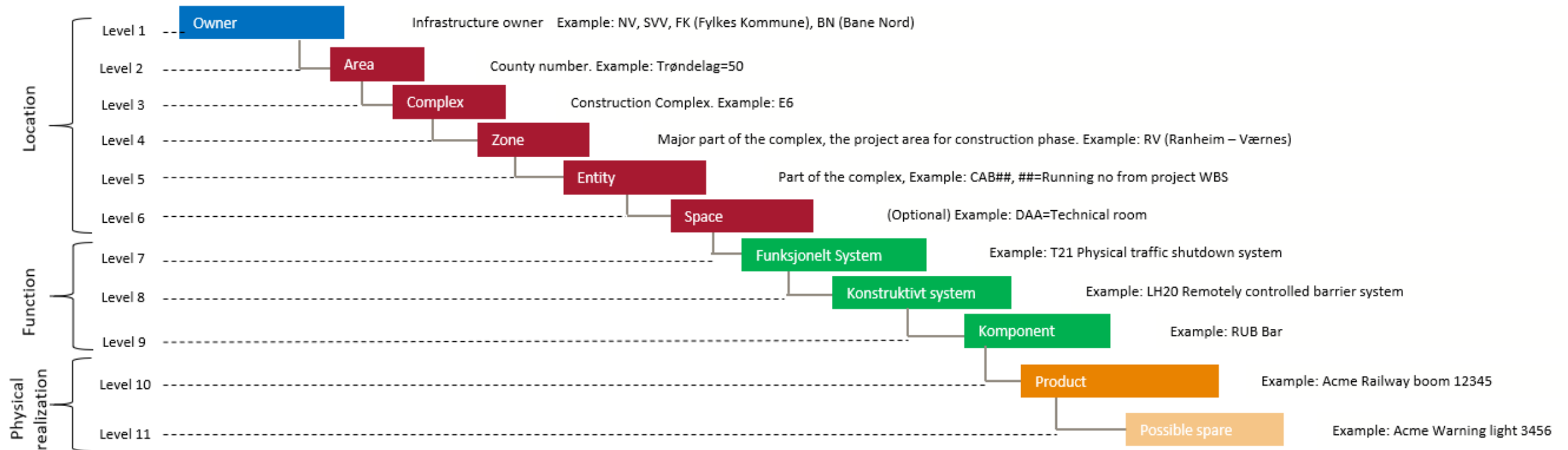


Quadri til Quadri import

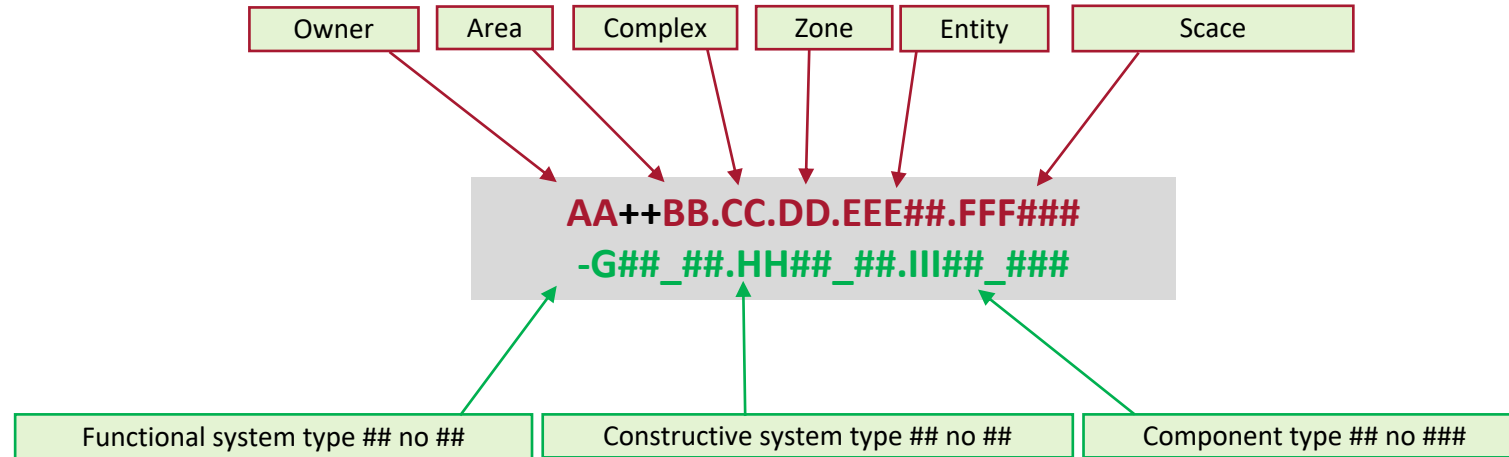


CoClass implementasjon for Ranheim – Værnes

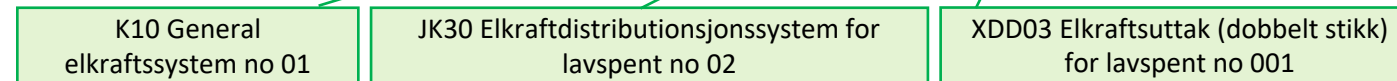
CoClass



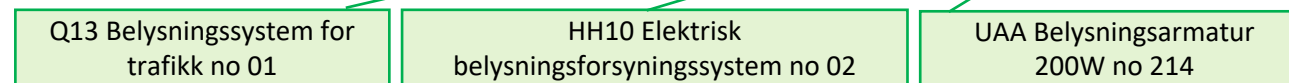
CoClass kontkatenert kode



NV++50.E6.RV.CAB08.DAA104/-K10_01.JK30_02.XDD03_001



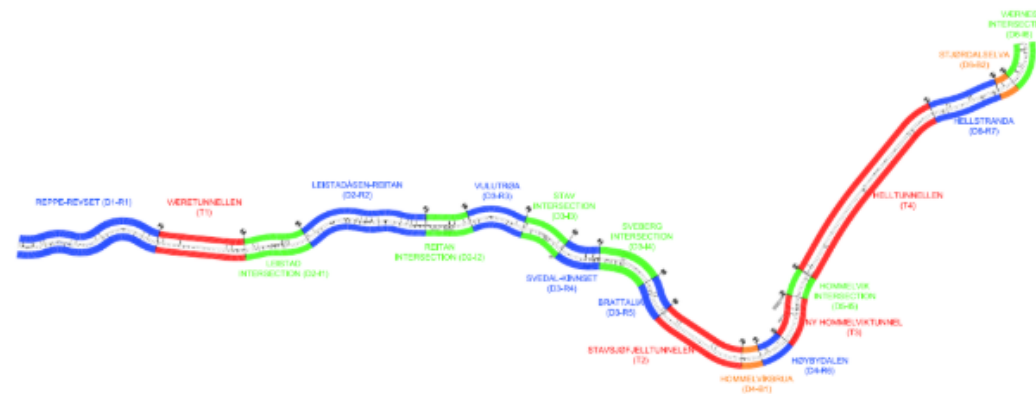
NV++50.E6.RV.CAB08.FAA101/-Q13_01.HH10_02.UAA02_214



++ indikerer lokalisering
- indikerer funksjon

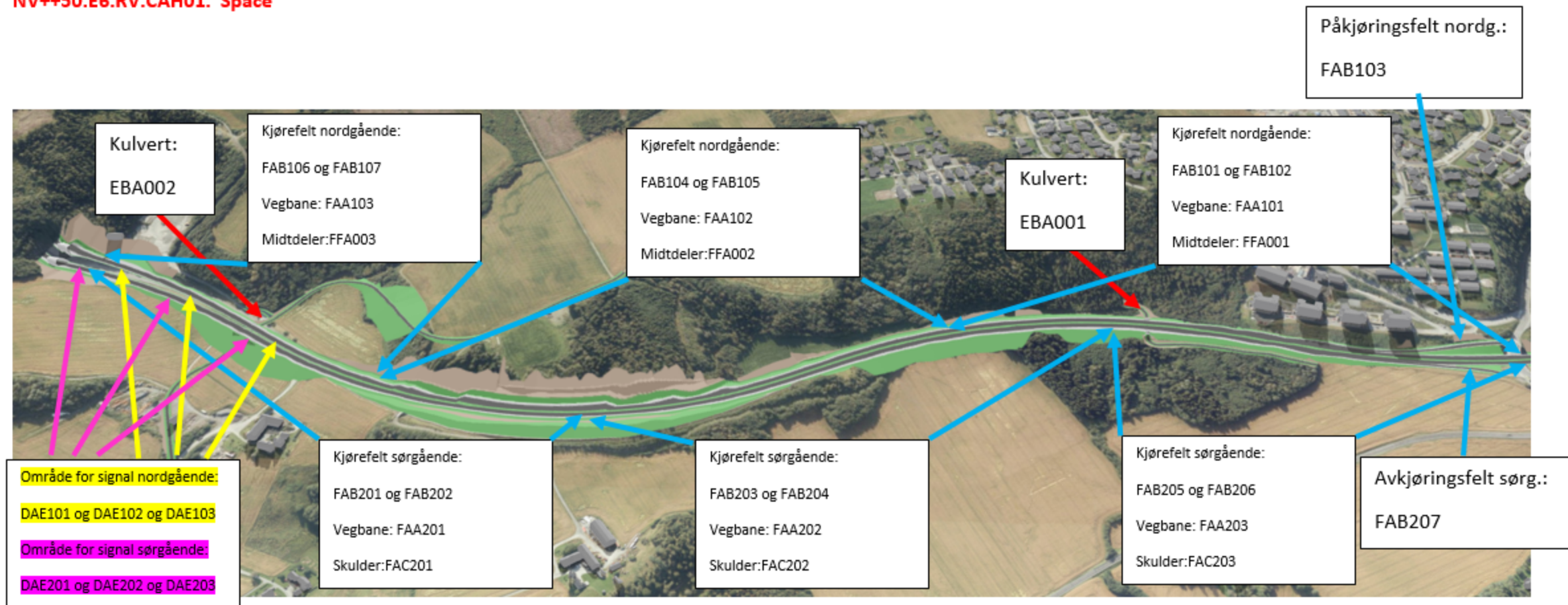
Entities

Description	CoClass code	Running number	Location code
Reppe-Revset Road segment R1	CAH	01	CAH01
Væretunnellen Tunnel T1	CAB	02	CAB02
Leistad Intersection area I1	CAR	03	CAR03
Leistadåsen-Reitan Road segment R2	CAH	04	CAH04
Reitankrysset Intersection area I2	CAR	05	CAR05
Vulutrøa Road segment R3	CAH	06	CAH06
Stav Intersection area I3	CAR	07	CAR07
Svedal-Kinnset Road segment R4	CAH	08	CAH08
Sveberg Intersection area I4	CAR	09	CAR09
Brattalia Road segment R5	CAH	10	CAH10
Stavsjøfjelltunnellen Tunnel T2	CAB	11	CAB11
Hommelvikbrua Bridge area B1	CAA	12	CAA12
Høybydalen Road segment R6	CAH	13	CAH13
Ny Hommelvik tunnel (Svartløfttunnelen) Tunnel T3	CAB	14	CAB14
Hommelvik Intersection area I5	CAR	15	CAR15
Helltunnellen Tunnel T4	CAB	16	CAB16
Hellstranda Road segment R7	CAH	17	CAH17
Stjørdalselva Bridge area B2	CAA	18	CAA18
Værnes Intersection area I6	CAR	19	CAR19



Spaces

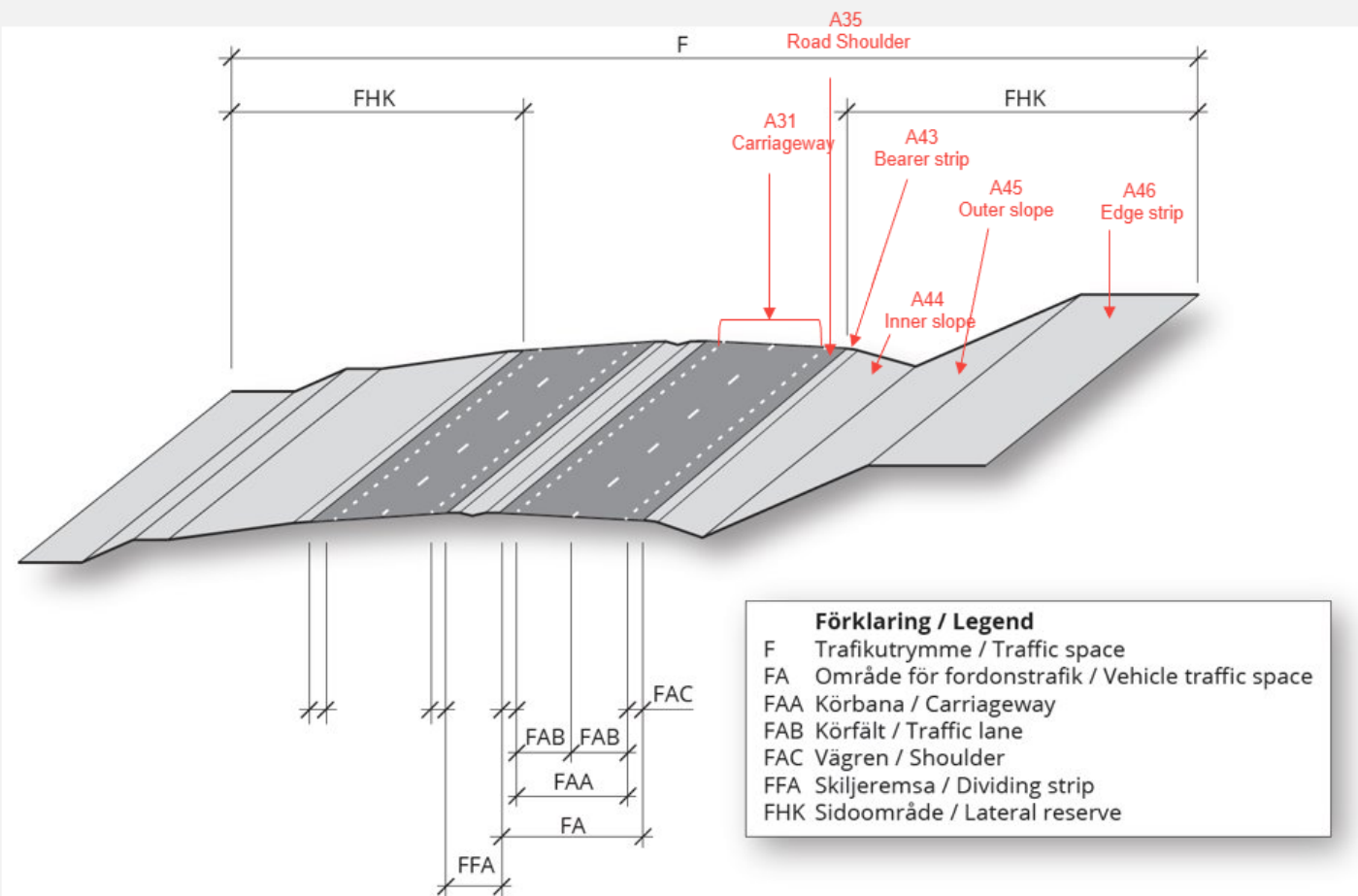
NV++50.E6.RV.CAH01."Space"



CoClass klassifisering av vegoverflatene

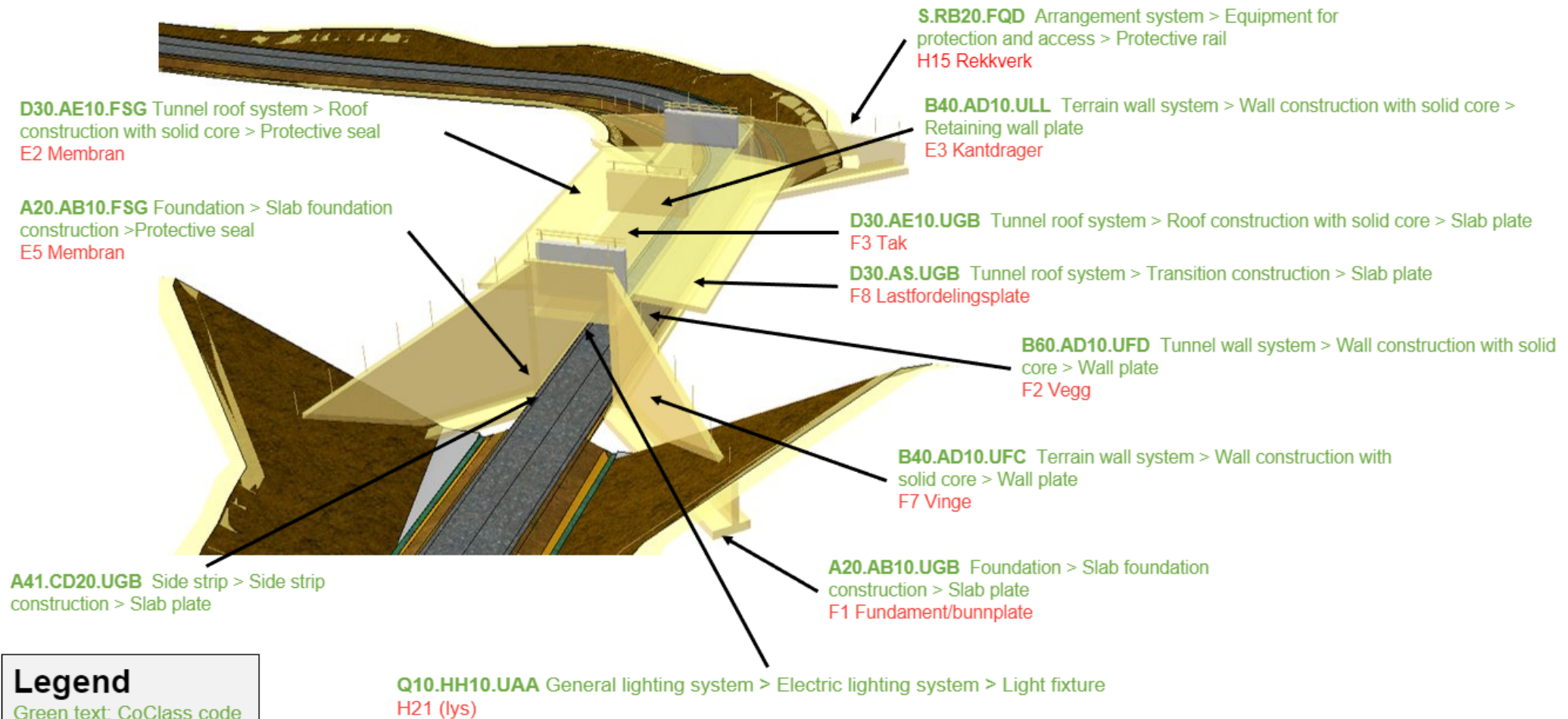


Functional Systems and Spaces overlaid



- Space FHK consists of
 - A46 Edge strip
 - A44 Inner slope
 - A45 Outer slope
 - A46 Side strip
- Space FAC consists of
 - A43 Bearer strip
- Space FAA consists of
 - A31 Carriageway

CoClass klassifisering av kulvert



Legend

Green text: CoClass code
Red: Brutus code
Blue: V770

CoClass struktur i Svensk Byggtjänst Studio



Nye Veier  CoClass version 1.0.0 

CAH	CAH Road	Construction entity
F	F Traffic space	Space
FHK	FHK Lateral reserve	Space
FA	FA Vehicle traffic space	Space
FFA	FFA Dividing strip	Space
G	G Drainage and waste system	Functional systems
A	A Ground system	Functional systems
G	G Drainage and waste system	Functional systems
F	F Water and fluid system	Functional systems
EBA	EBA Services tunnel	Space
A	A Ground system	Functional systems
AB	AB Foundation construction	Constructive systems
UGB	UGB Slab plate	Components
B	B Wall system	Functional systems
B	B Wall system	Functional systems
D	D Roof system	Functional systems
S	S Arrangement system	Functional systems

Novapoint

Classification 

 JEH 1 base on Quadri_1933_1.28

Apply classification to selected feature(s)

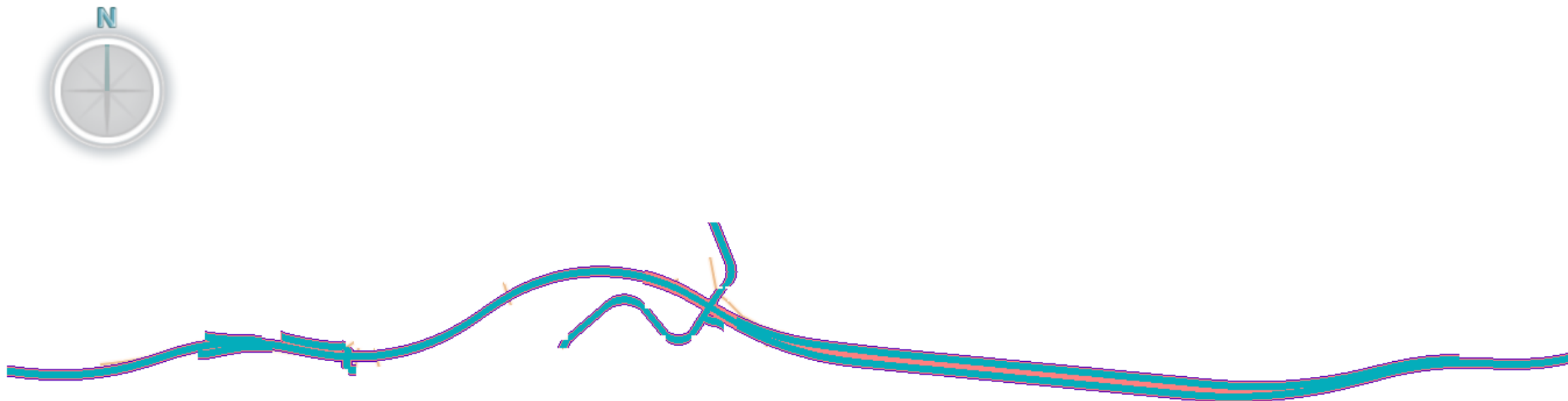
- CAH Road
 - F Traffic space
 - FHK Lateral reserve
 - FA Vehicle traffic space
 - FFA Dividing strip
 - G21 Surface runoff system
 - A10 Subgrade
 - G11 Wastewater system
 - F20 Purified water system
 - EBA Services tunnel
 - A20 Foundation
 - AB10 Slab foundation construction
 - UGB Slab plate
 - B40 Terrain wall system
 - B60 Tunnel wall system
 - D30 Tunnel roof system
 - S Arrangement system

Klassifisering i Novapoint basert på CoClass

«Anleggsnettverket» bygges opp ved import av vegmodeller og VA-modeller



«Anleggsnettverket» belegges med CoClass klassifiseringsobjekt; Owner (NV), Area (=50), Complex (=E6), Zone (=RV), Entities og Space



«Stykk objekter» knyttes til nettverket og klassifiseres ved å velge komponenter i CoClass strukturtreet fra Svensk Byggtjänst

The screenshot displays the Trimble software interface with a 3D model of a bridge structure in the center. The interface includes a top menu bar with tabs for 'Startsiden', 'E6 Ranheim-Værnes 10', 'E6 Ranheim-Værnes 10 #2', and 'Import f-bru_K01 Govatsmark driftsundergang.ifc 1'. On the right, the 'Classification' panel shows a tree structure with the following items:

- JEH 1 base on Quadri_1933_1.28
 - Apply classification to selected feature(s)
 - CAH Road
 - F Traffic space
 - FHK Lateral reserve
 - FA Vehicle traffic space
 - FFA Dividing strip
 - G21 Surface runoff system
 - A10 Subgrade
 - G11 Wastewater system
 - F20 Purified water system
 - EBA Services tunnel
 - A20 Foundation
 - AB10 Slab foundation construction
 - UGB Slab plate**
 - B40 Terrain wall system
 - B60 Tunnel wall system
 - D30 Tunnel roof system
 - S Arrangement system

At the bottom, the 'Feature table (edit)' window shows a table with 16 columns (0 to 15) and 1 row(s). The table is titled 'CoClass' and contains the following data:

FeatureTypeName	space	spaceRN	functionalSystem	functionalSyste...	constructiveSyst...	constructiveSyst...	component	componentRN
ProxyFeature (4)	1	EBA	1	A20		AB10	UGB	

«Bulk objekter» klassifiseres ved å belegge nettverket med CoClass PSet-objekt og utføre en virtuell segmentering



Web-portalen

<https://aim-nye-veier-test.azurewebsites.net/map>

Web-portal: Anleggsnettverk i 2D

Browser address bar: aim-nye-veier-development.azurewebsites.net/map?featureId=6a76e6c7-8583-4808-9b99-99901c0da7cd&featureTypeId=51&sourceId=DETERRENGUID

Browser tabs: Apps, Google, Ny fane, Vi tar en rungende ..., Bærum Seilforening..., Kurskalender | Blow..., Kurs: Båtførerprøve..., Fresh AB - for et su..., E6KA Nord-Skilttest..., Trimble World, Trimble Connect, Vianova-Trimble ne..., Digital tvilling Bjørn..., NP Engineering

Header: **NyeVeier** **AIM** Jan_Erik Hoel

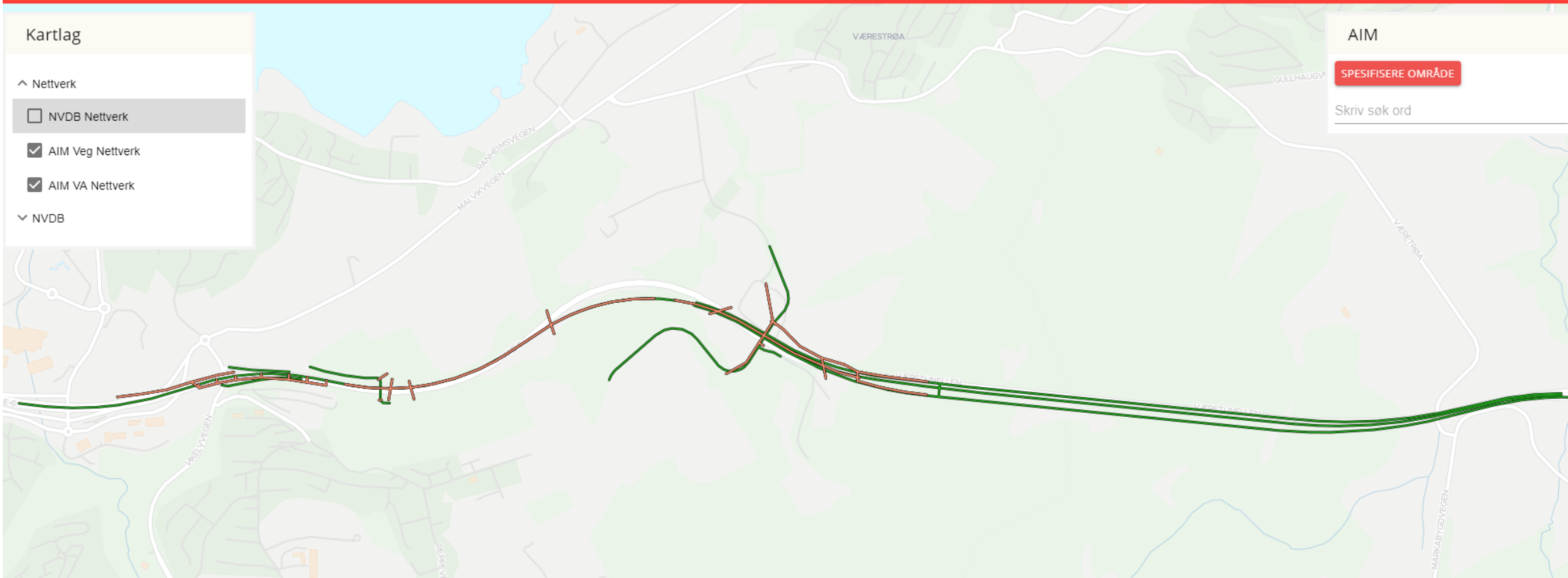
Kartlag

- Nettverk
 - ☐ NVDB Nettverk
 - ☒ AIM Veg Nettverk
 - ☒ AIM VA Nettverk
- NVDB

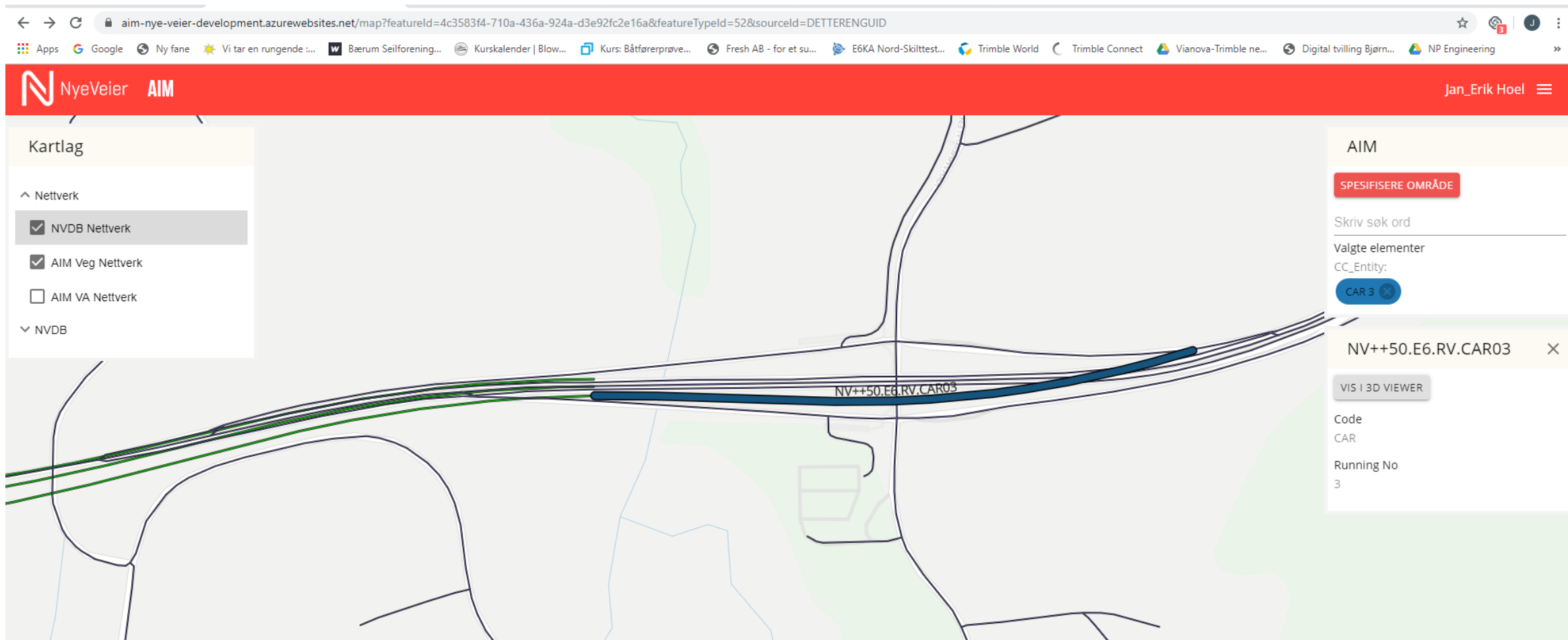
AIM

SPESIFISERE OMRÅDE

Skriv søk ord



Web-portal: CoClass lokasjonsobjekt i 2D



The screenshot shows a web portal interface for a 2D map. The browser address bar displays the URL: `aim-nye-veier-development.azurewebsites.net/map?featureId=4c3583f4-710a-436a-924a-d3e92fc2e16a&featureTypeld=52&sourceId=DETERENGUID`. The top navigation bar is red and contains the logos for "NyeVeier" and "AIM", along with the user name "Jan_Erik Hoel".

On the left side, there is a "Kartlag" (Map Layer) panel with the following options:

- Nettverk
 - ☒ NVDB Nettverk
 - ☒ AIM Veg Nettverk
 - ☐ AIM VA Nettverk
- NVDB

The main map area shows a road network. A specific road segment is highlighted in blue and labeled "NV++50.E6.RV.CAR03".

On the right side, there is an "AIM" panel with the following content:

- A red button labeled "SPESIFISERE OMRÅDE".
- A search bar labeled "Skriv søk ord".
- A section titled "Valgte elementer" (Selected elements) with the text "CC_Entity:" and a blue button labeled "CAR 3".
- A yellow box containing the text "NV++50.E6.RV.CAR03" and a close button (X).
- A button labeled "VIS I 3D VIEWER".
- Object details:
 - Code: CAR
 - Running No: 3

Web-portal: Visning av 3D-modell

Browser address bar: aim-nye-veier-development.azurewebsites.net/viewer/DETERENGUID/52/2c5a88d0-ecc8-4ff8-bda1-08f51326b646

Browser tabs: Apps, Google, Ny fane, Vi tar en rungende ..., Bærum Seilforening..., Kurskalender | Blow..., Kurs: Båtførerprøve..., Fresh AB - for et su..., E6KA Nord-Skilttest..., Trimble World, Trimble Connect, Vianova-Trimble ne..., Digital tvilling Bjørn..., NP Engineering

Header: NyeVeier AIM Jan_Erik Hoel

Left sidebar:

- ^ Nye Veier
 - ^ Trøndelag
 - ^ E6
 - ^ Ranheim - Værnes
 - CAB 2
 - Road 1**
 - CAR 3

Main view: 3D model of a road corridor with yellow terrain and black road lines.

Right sidebar:

102200 1 | SubgradeSurface

VIS KART de Pavement

Set
102200 1 | SubgradeSurface Outside
Pavement-11105 (SubgradeSurface-121008)

Id
78

FeatureTypeName
SubgradeSurface

FeatureTypeid
121008

Featureid
11105

metadata.liableDiscipline
ROAD

partOfCorridor