



Oplossingen inzicht in ondergrondse infra

Kevin Delaplace – Leica Geosystems

Lars Ruhe – Net4s

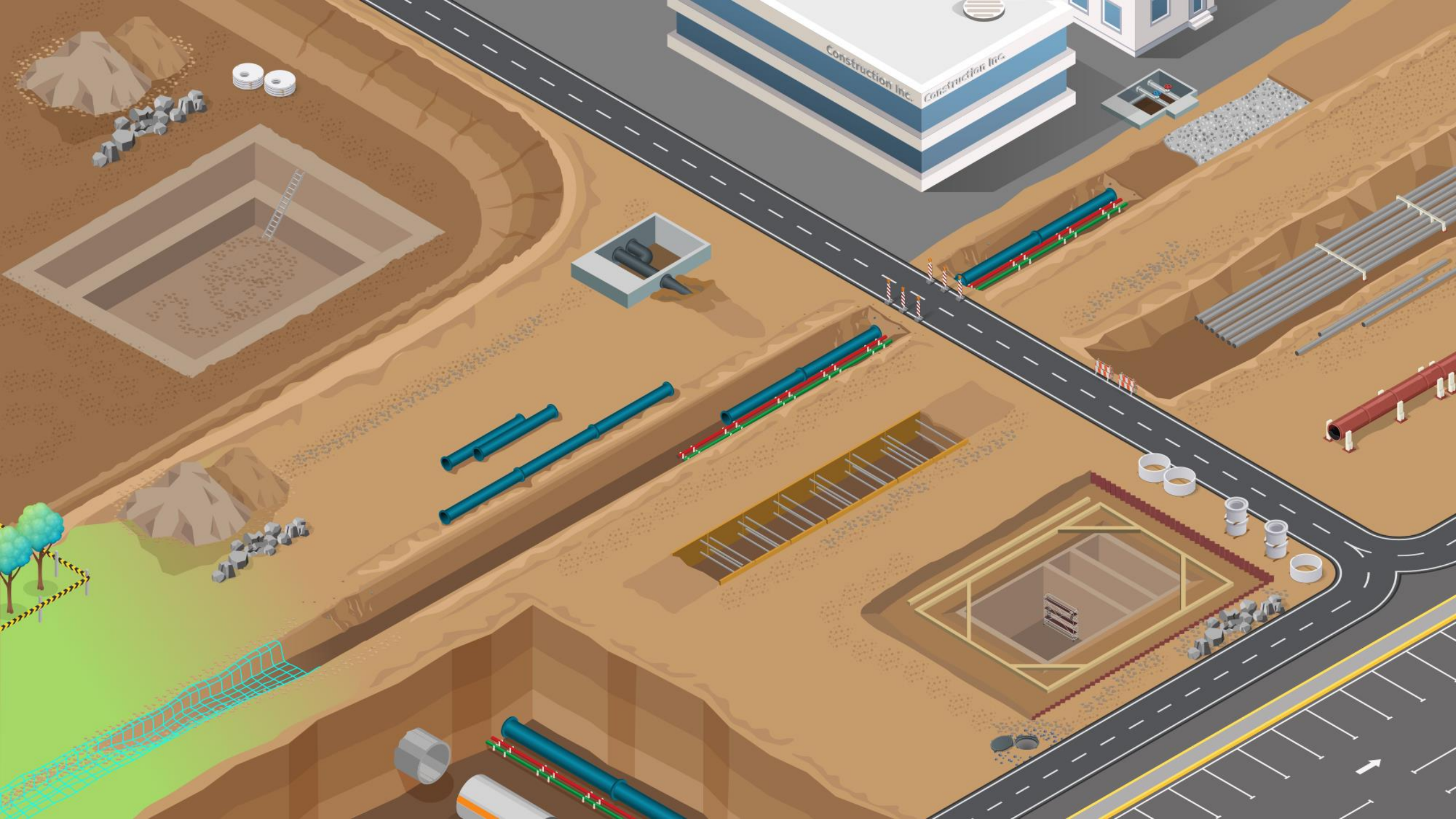
Kenniskring Ruimteschepper - 01 december 2022



1. Inleiding

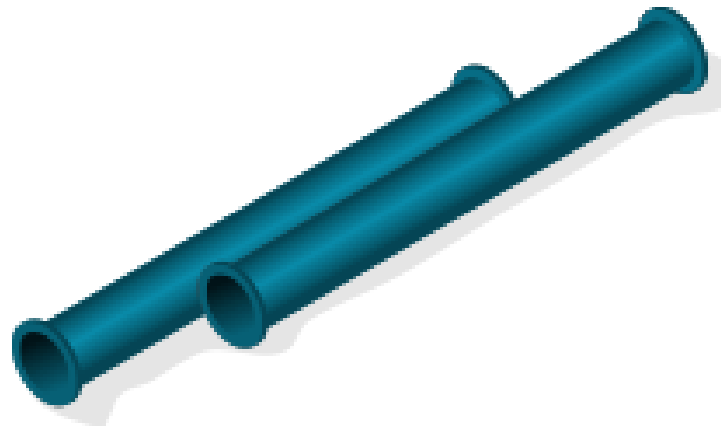
Gebruik van geografische data





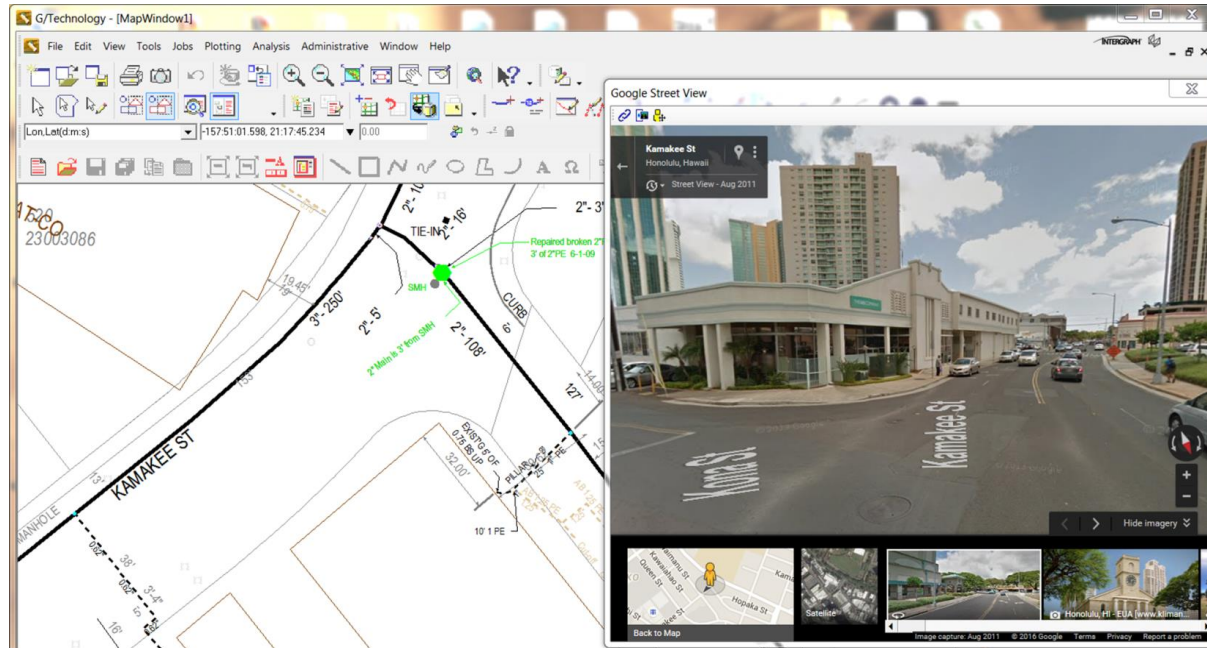
2. Wat ligt er onder de grond?

Beschikbare tools en workflows



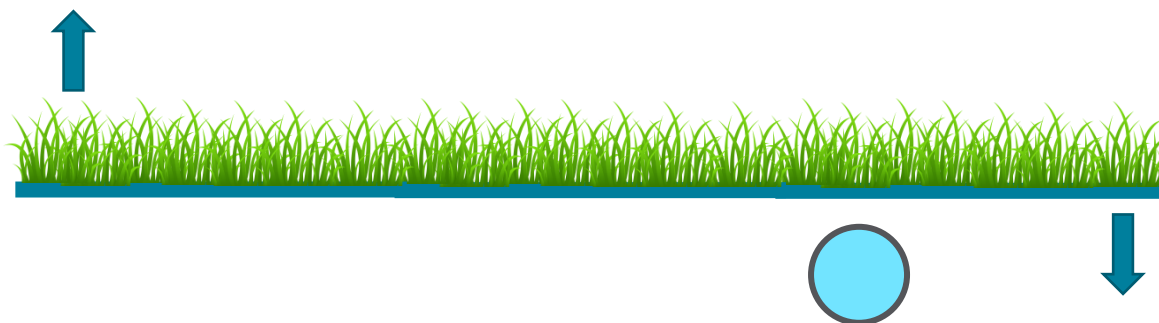
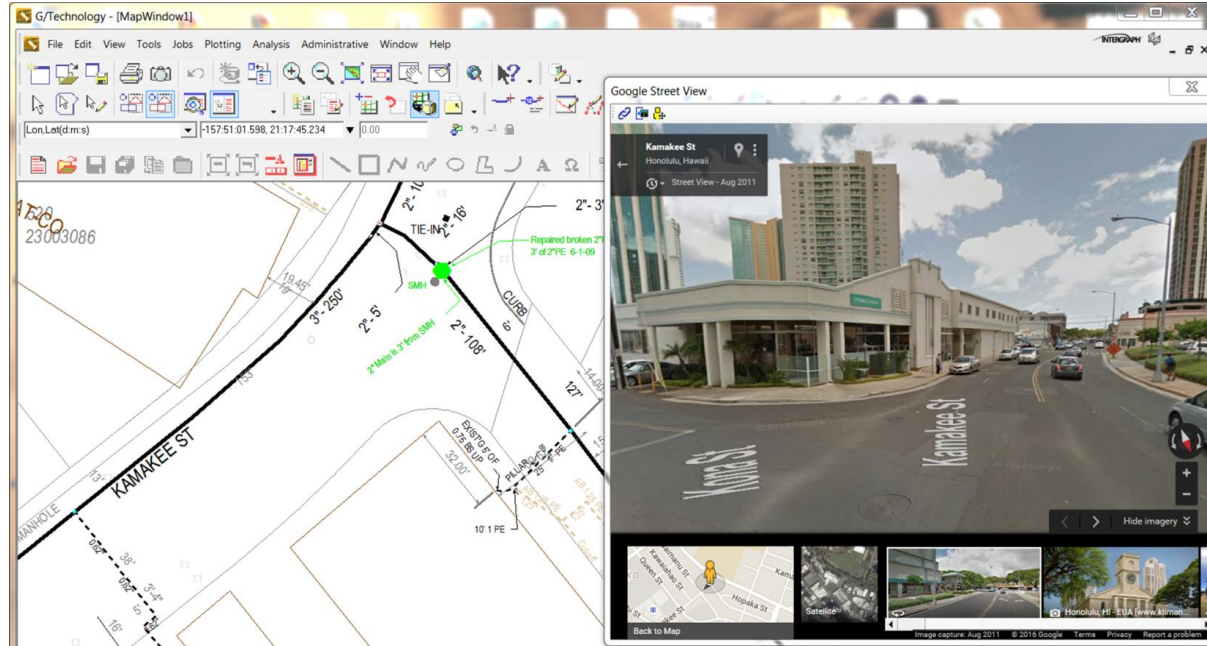
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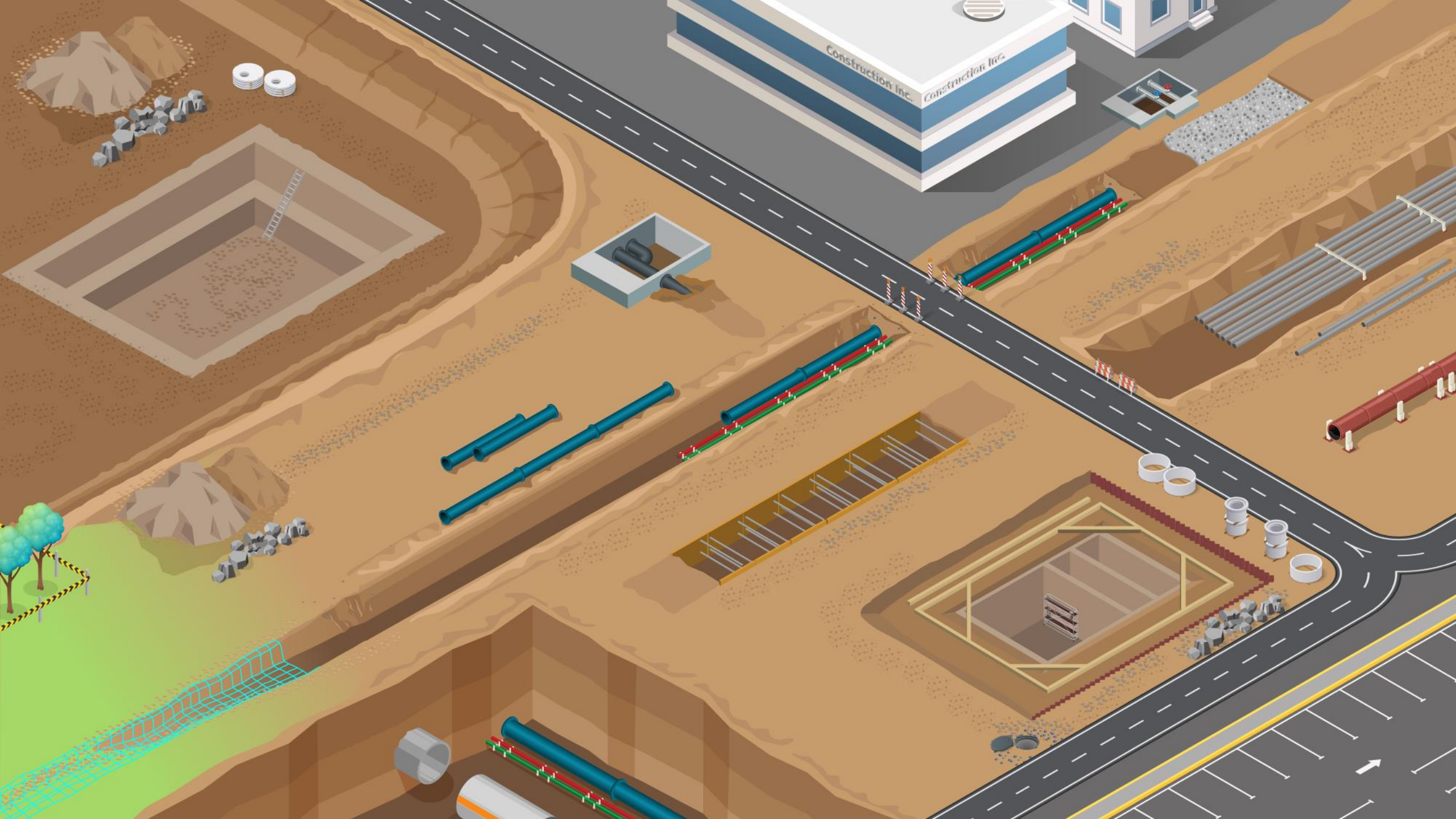
Beschikbare tools en workflows

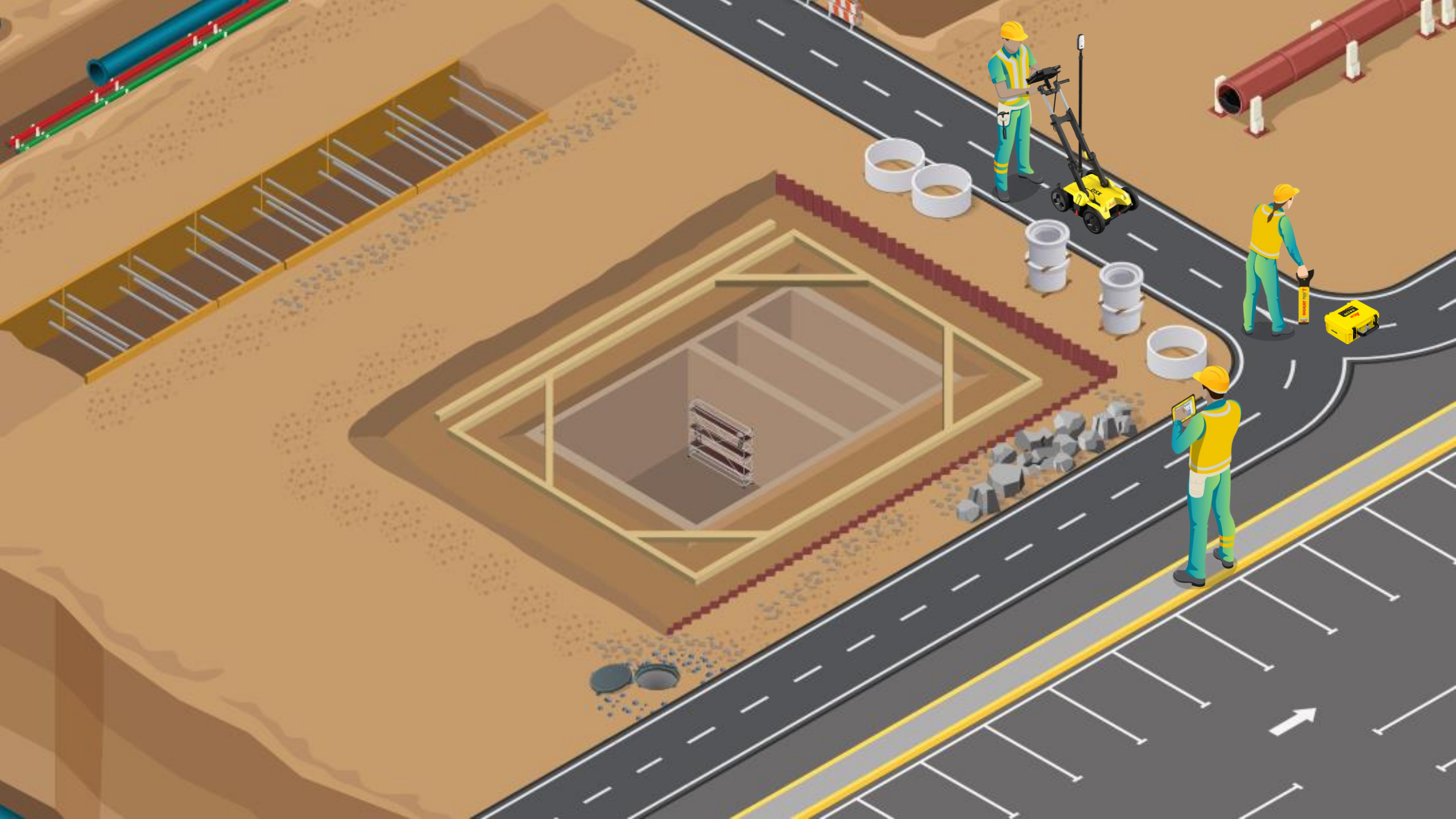


2. Wat ligt er onder de grond?

Beschikbare tools en workflows

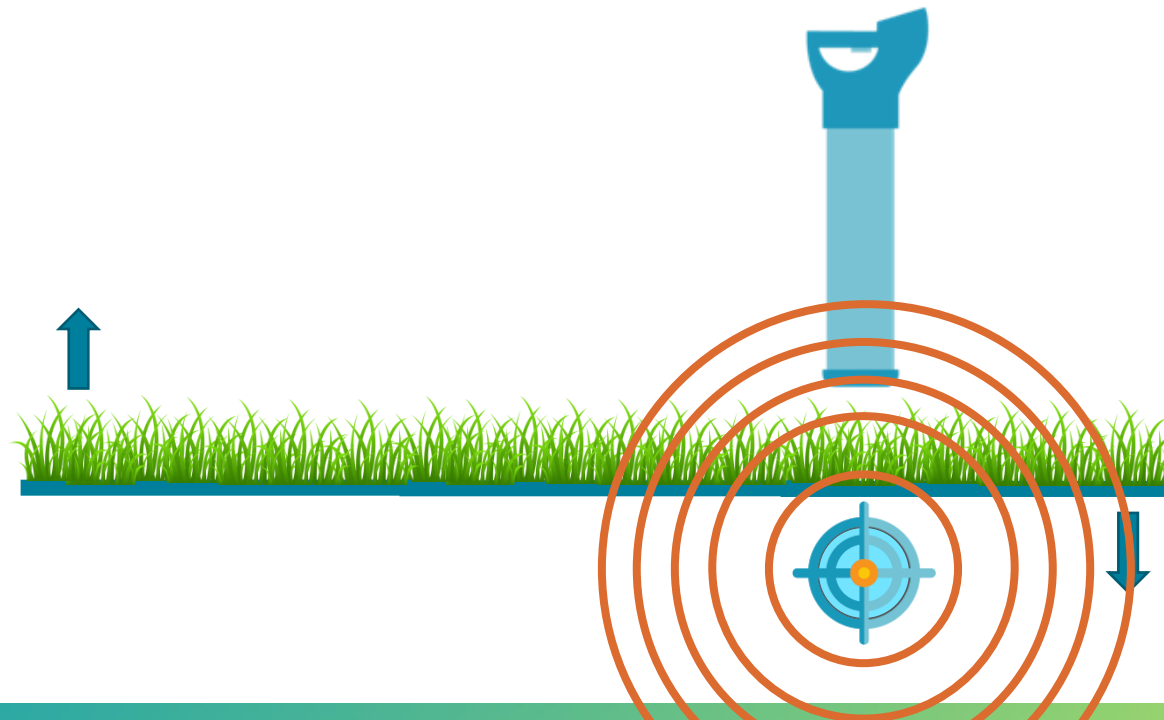






2. Wat ligt er onder de grond?

Beschikbare tools en workflows



3. Nauwkeuring inwinnen van data

Digitaal inwinnen van de as-built

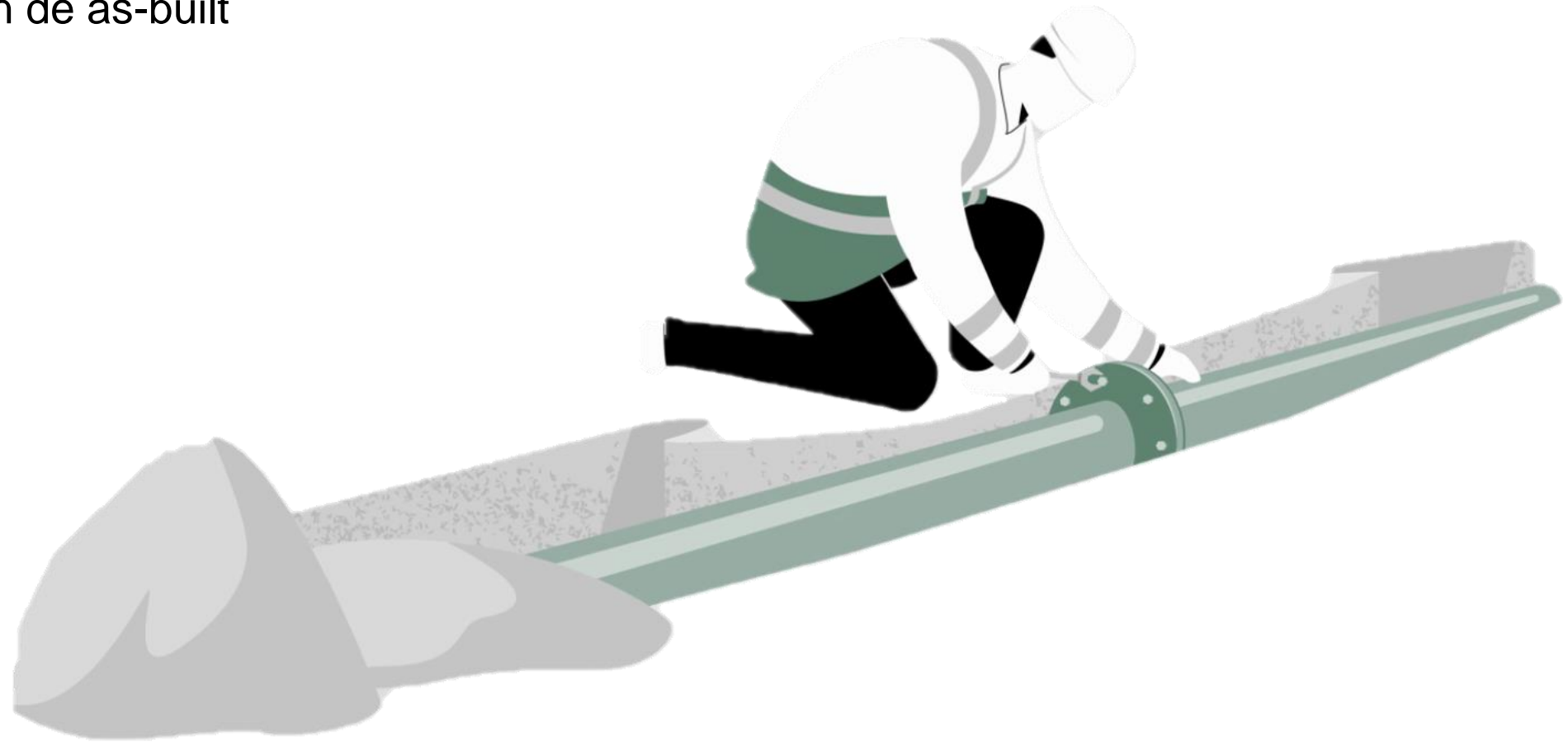
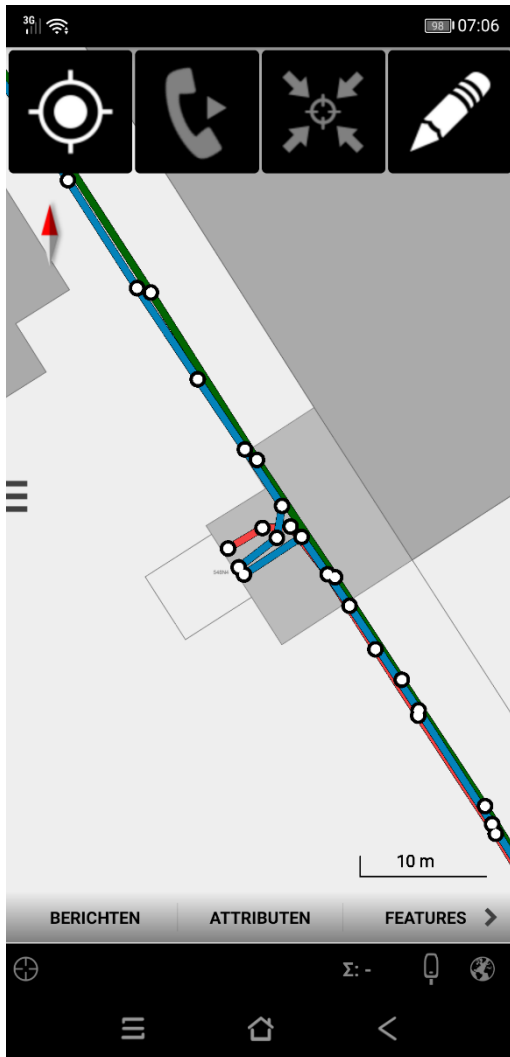




“ *Nauwkeuring inmeten is ingewikkeld en vereist een lange opleiding* ”

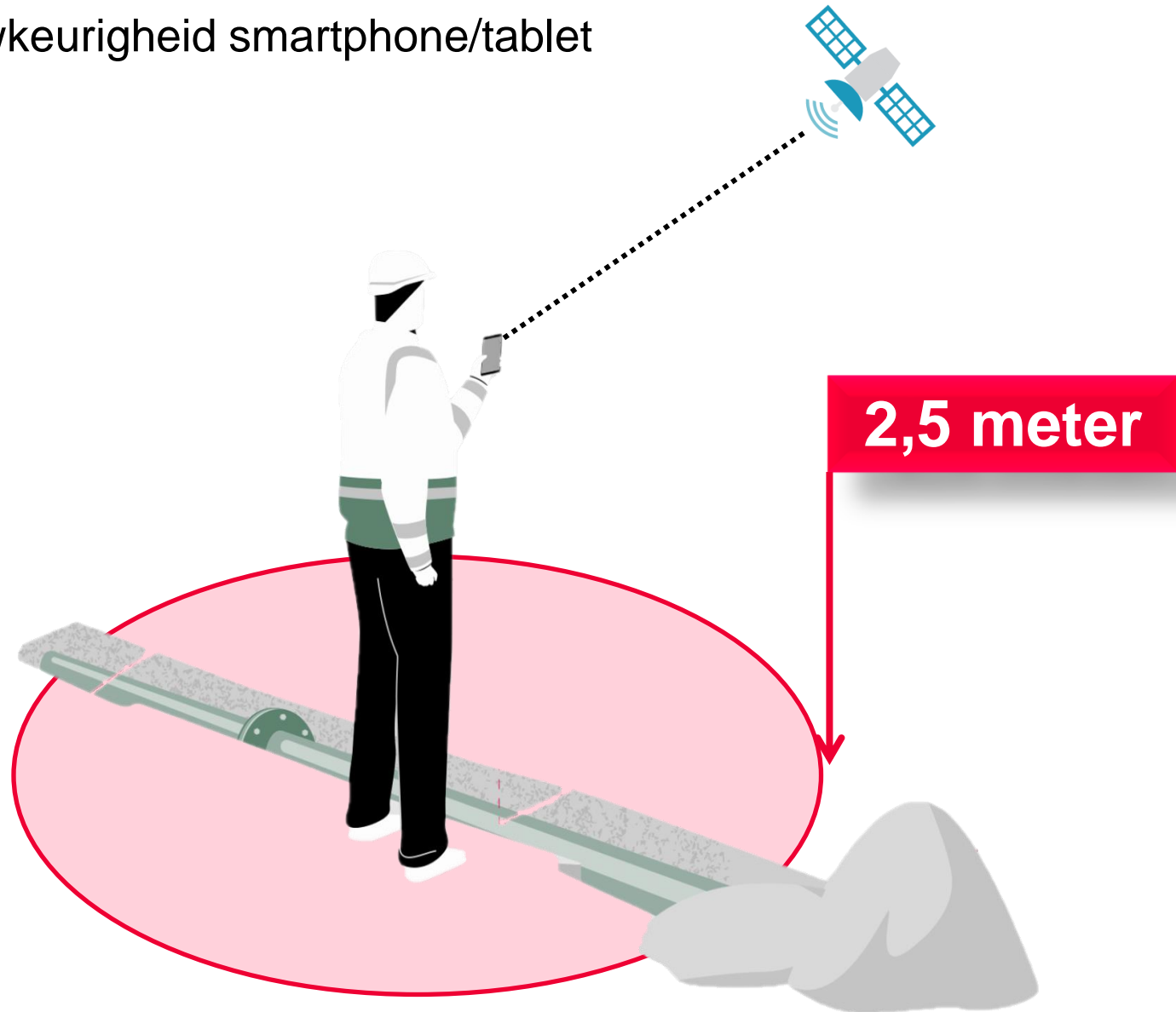
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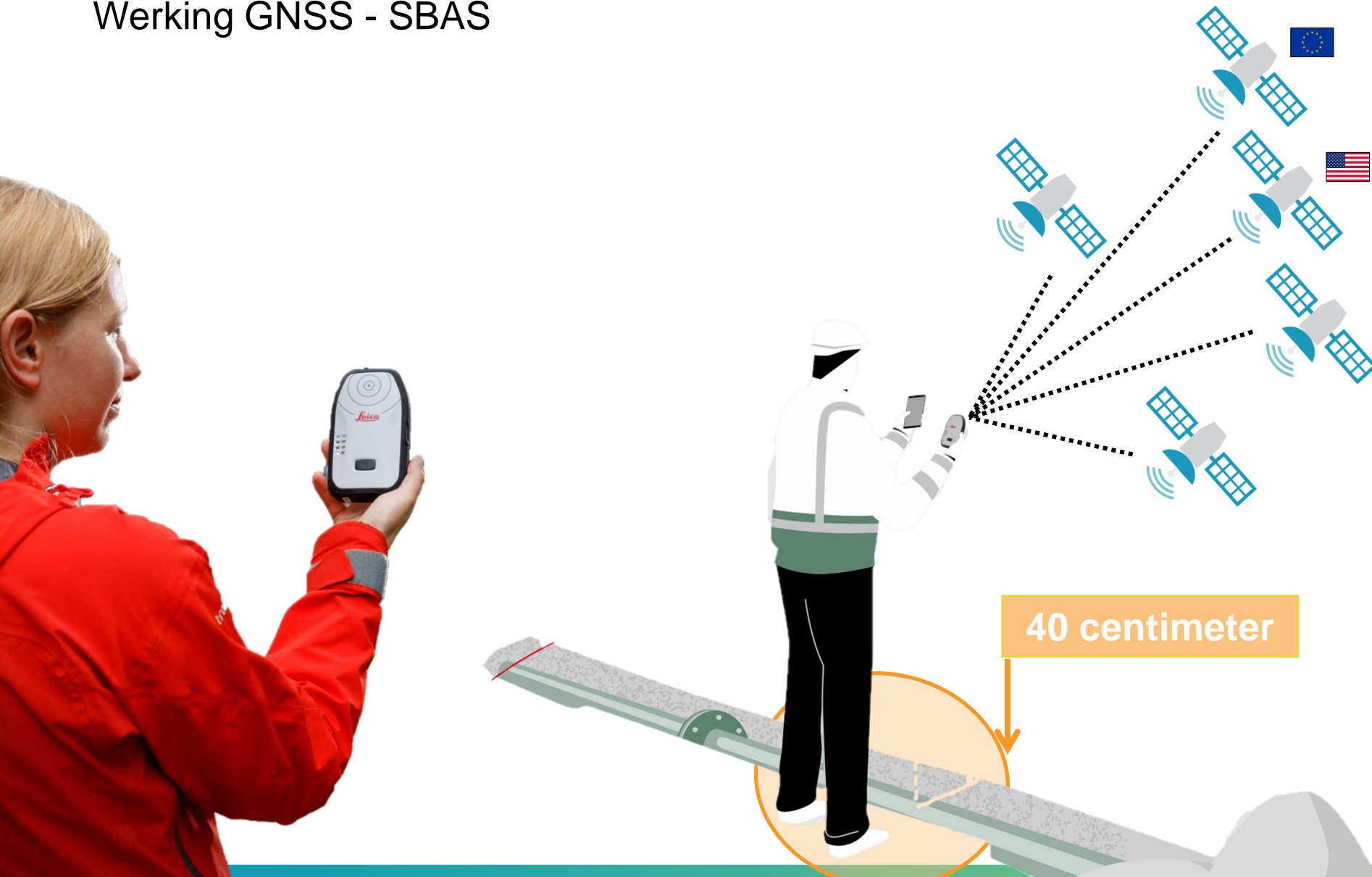
3. Nauwkeuring inwinnen van data

Werking GNSS – nauwkeurigheid smartphone/tablet



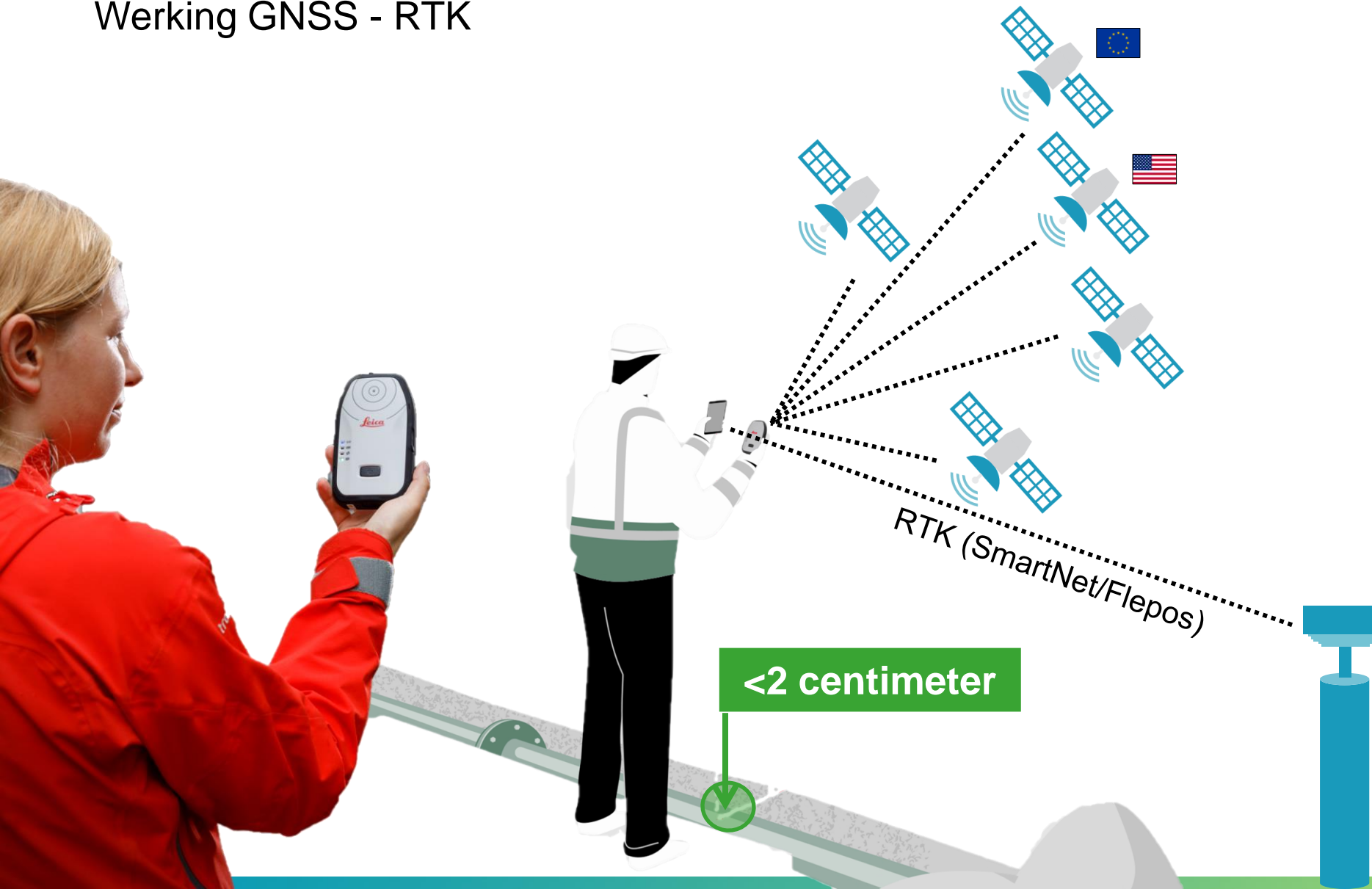
3. Nauwkeuring inwinnen van data

Werking GNSS - SBAS



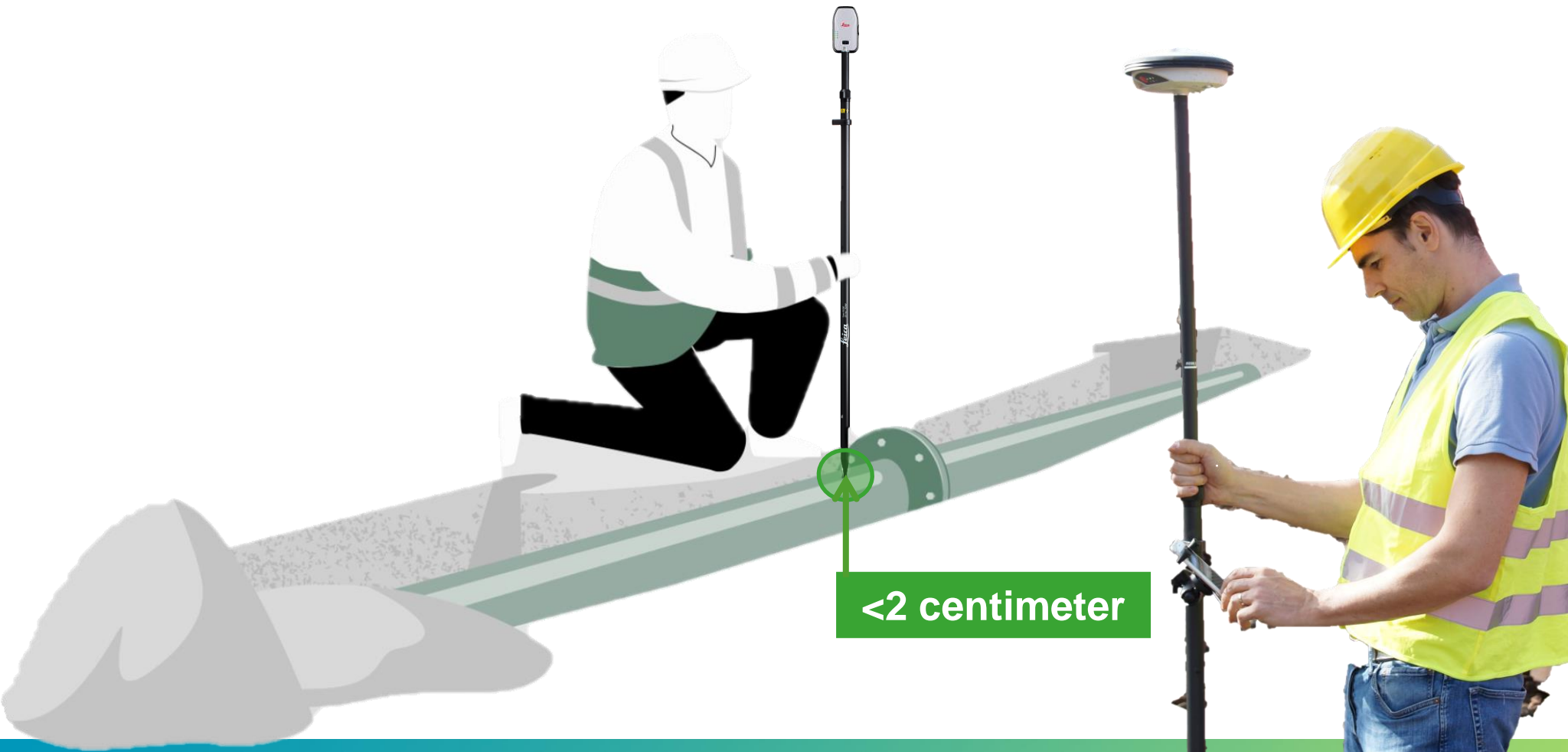
3. Nauwkeuring inwinnen van data

Werking GNSS - RTK



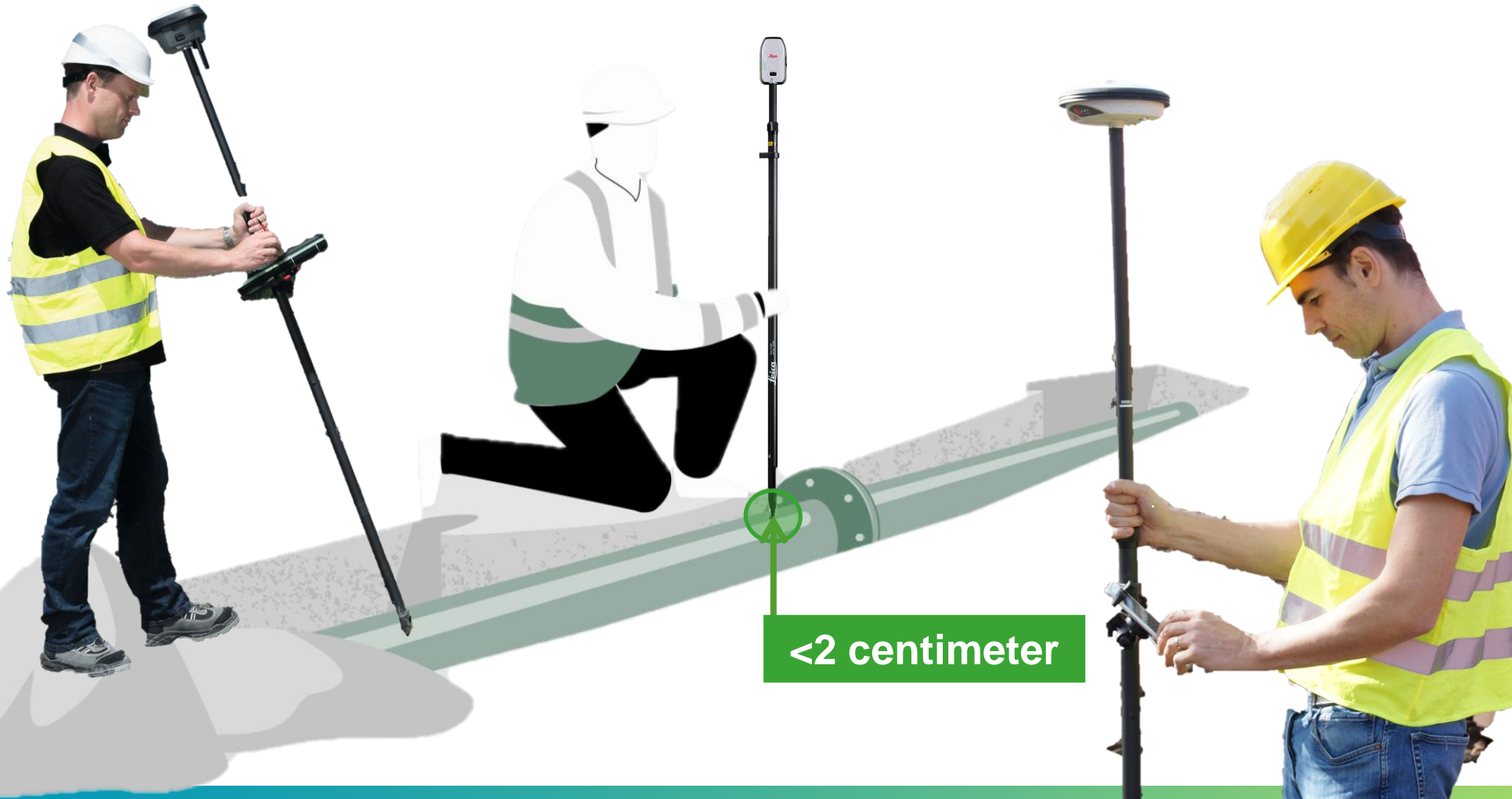
3. Nauwkeuring inwinnen van data

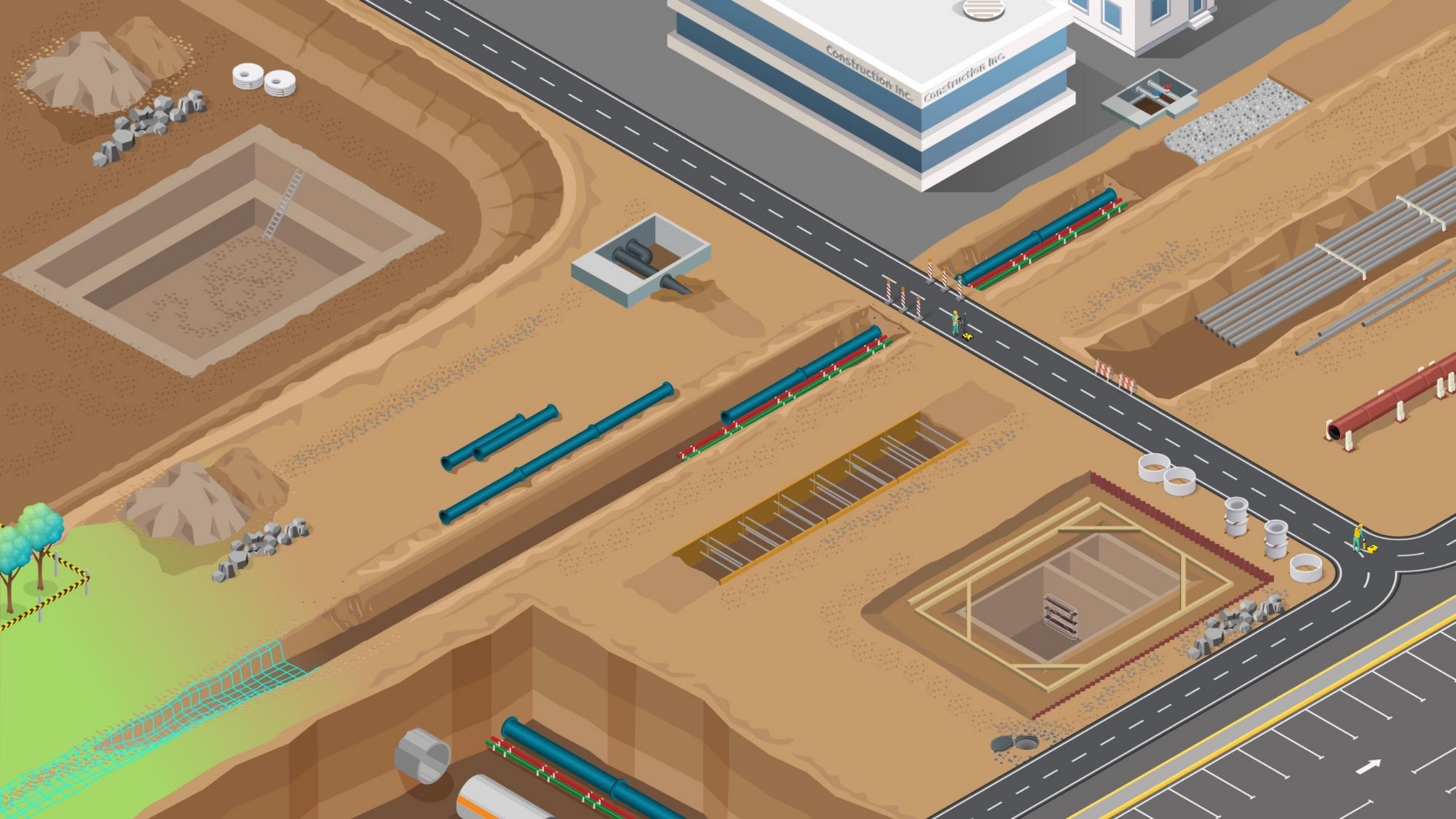
Werking GNSS – verschillende platformen



3. Nauwkeuring inwinnen van data

Werking GNSS – verschillende platformen

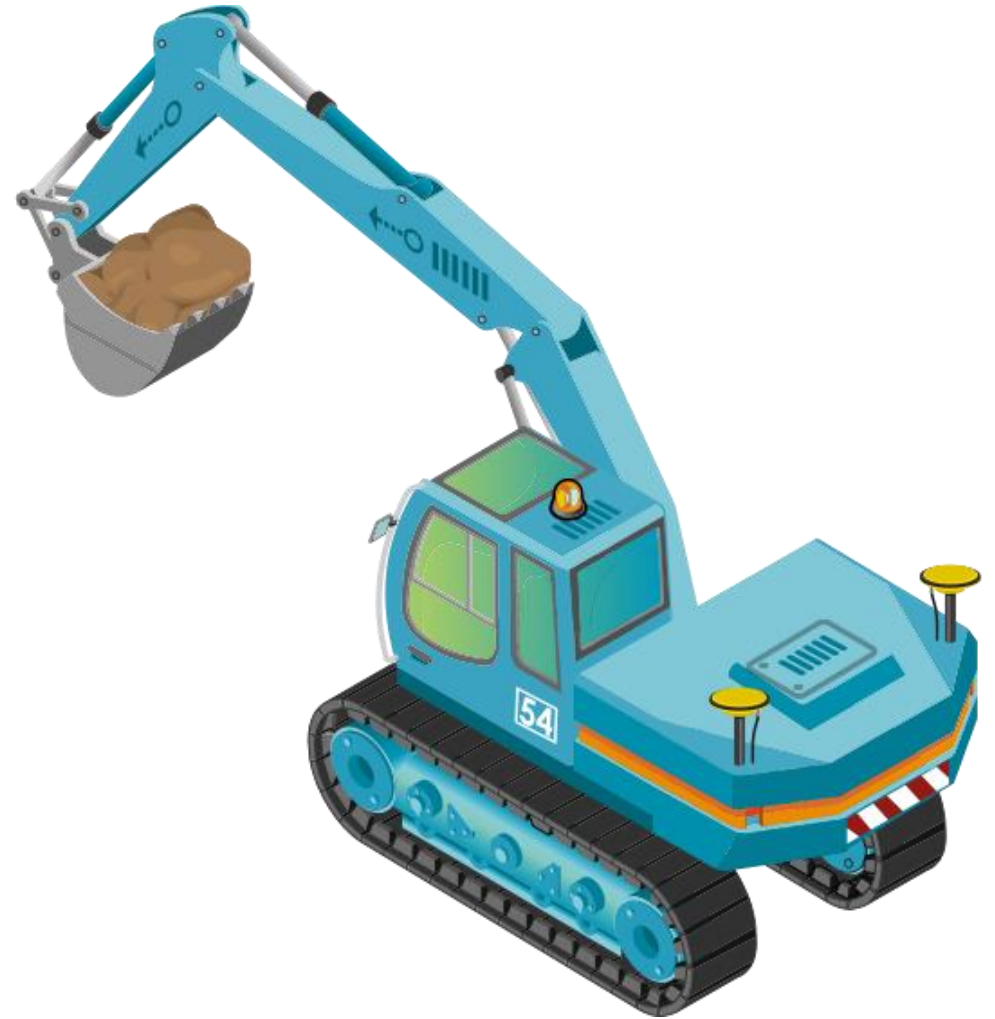






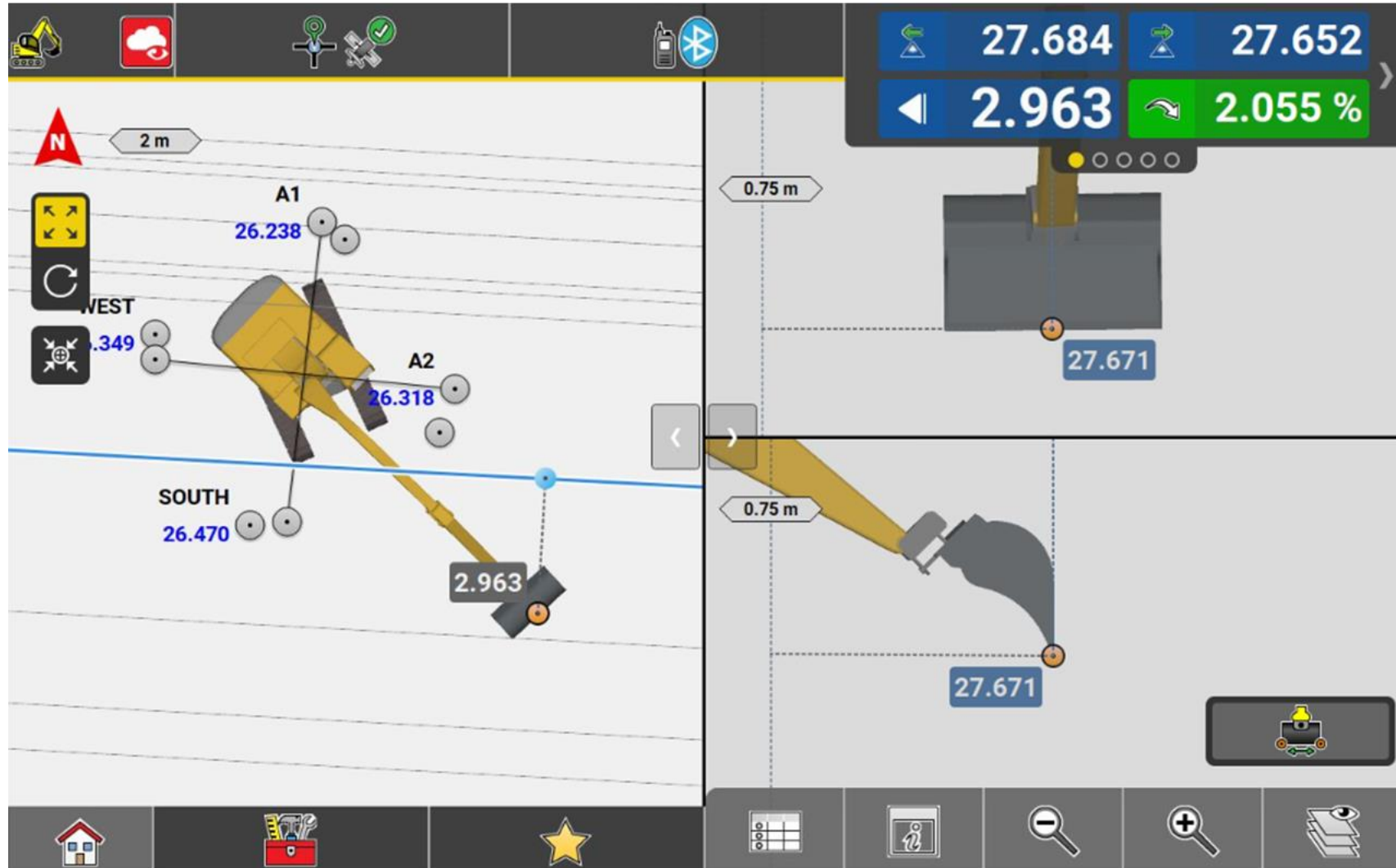
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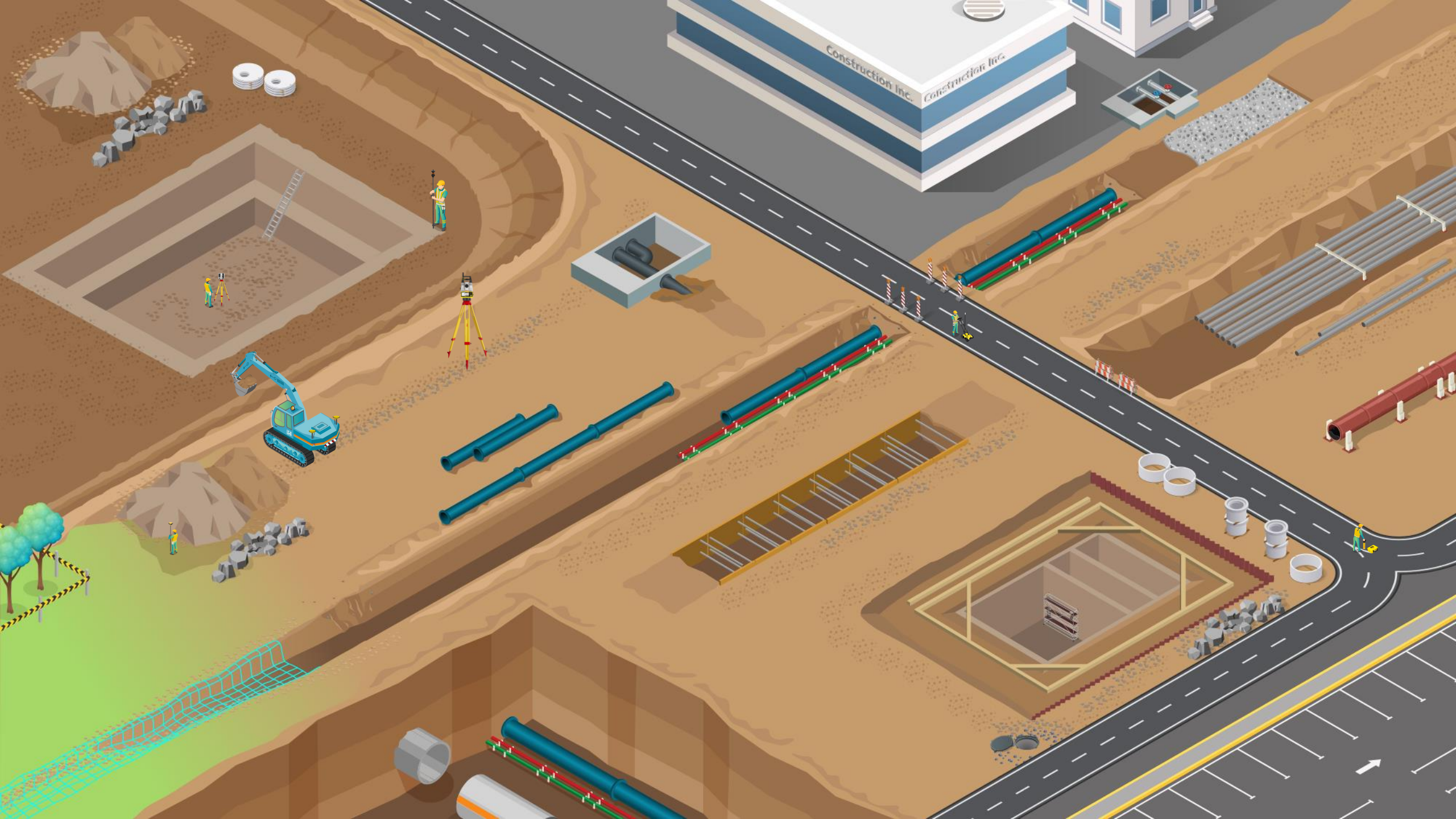
Leica Machinesturing – iCON Excavator



3. Nauwkeuring inwinnen van data

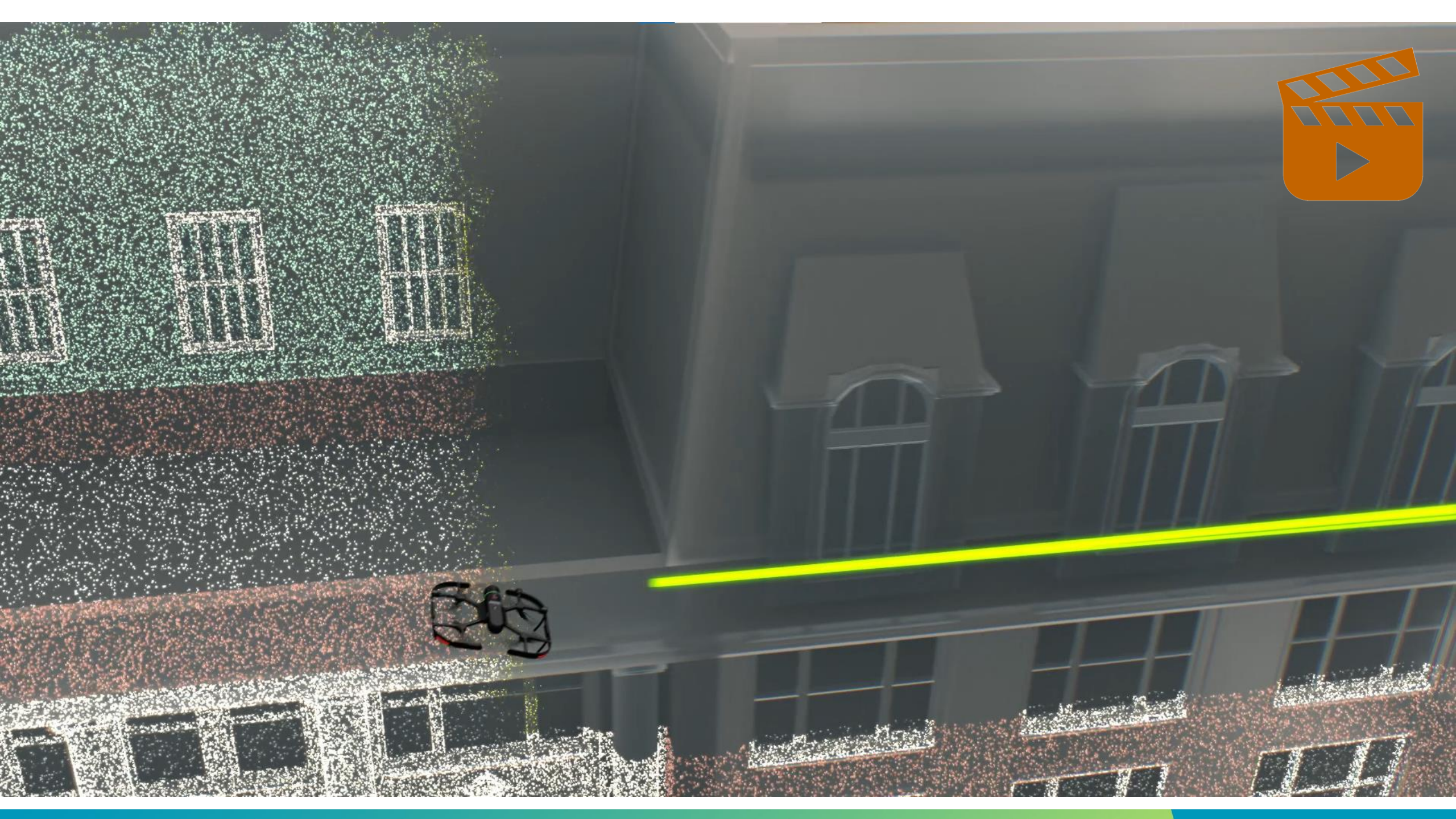
Leica Machinesturing – iCON Excavator





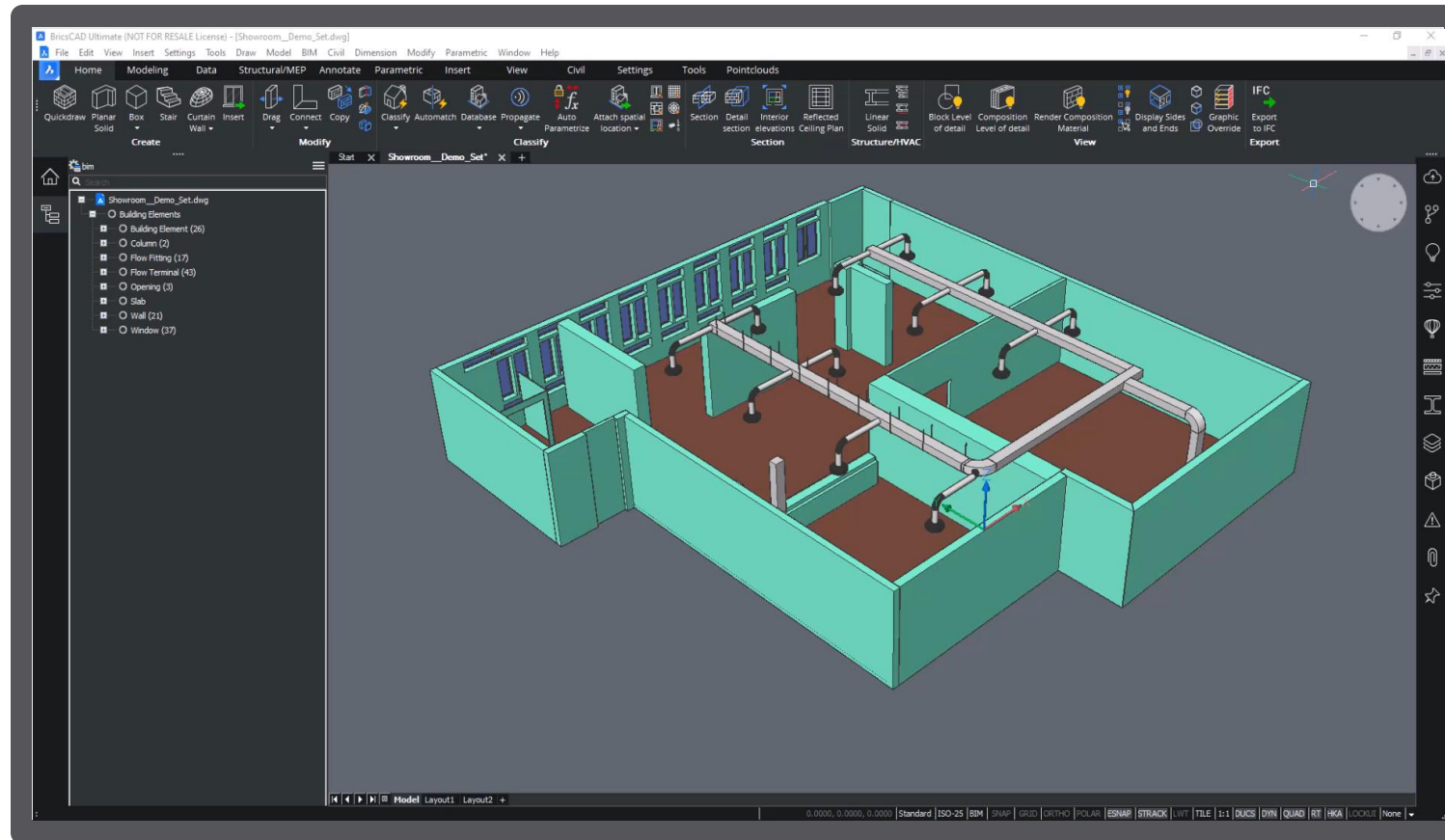






4. Toepassingen

Puntenwolken als basis van model



4. Toepassingen

Digitale workflow op het terrein



4. Toepassingen

AR – VR – MR

**AUGMENTED
REALITY**



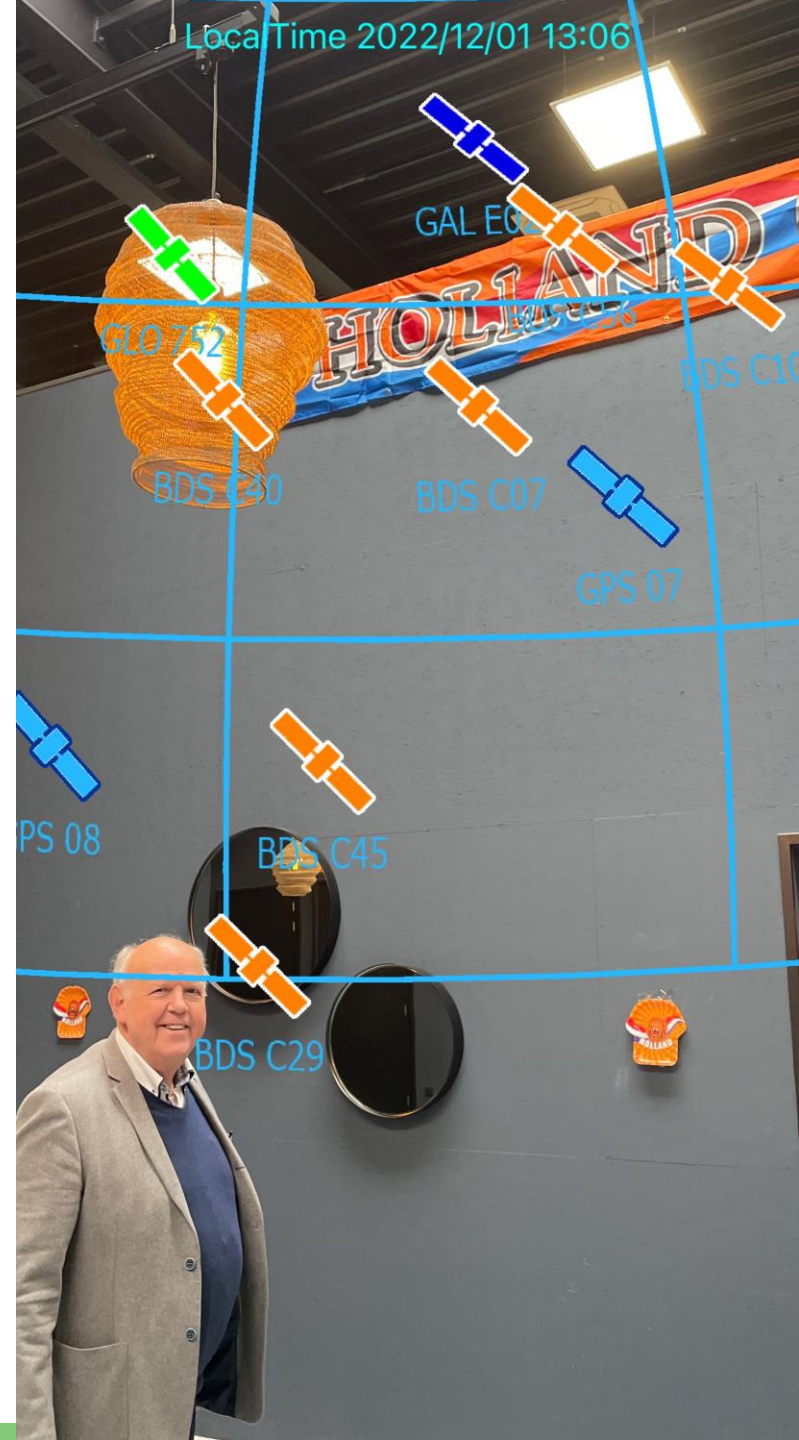
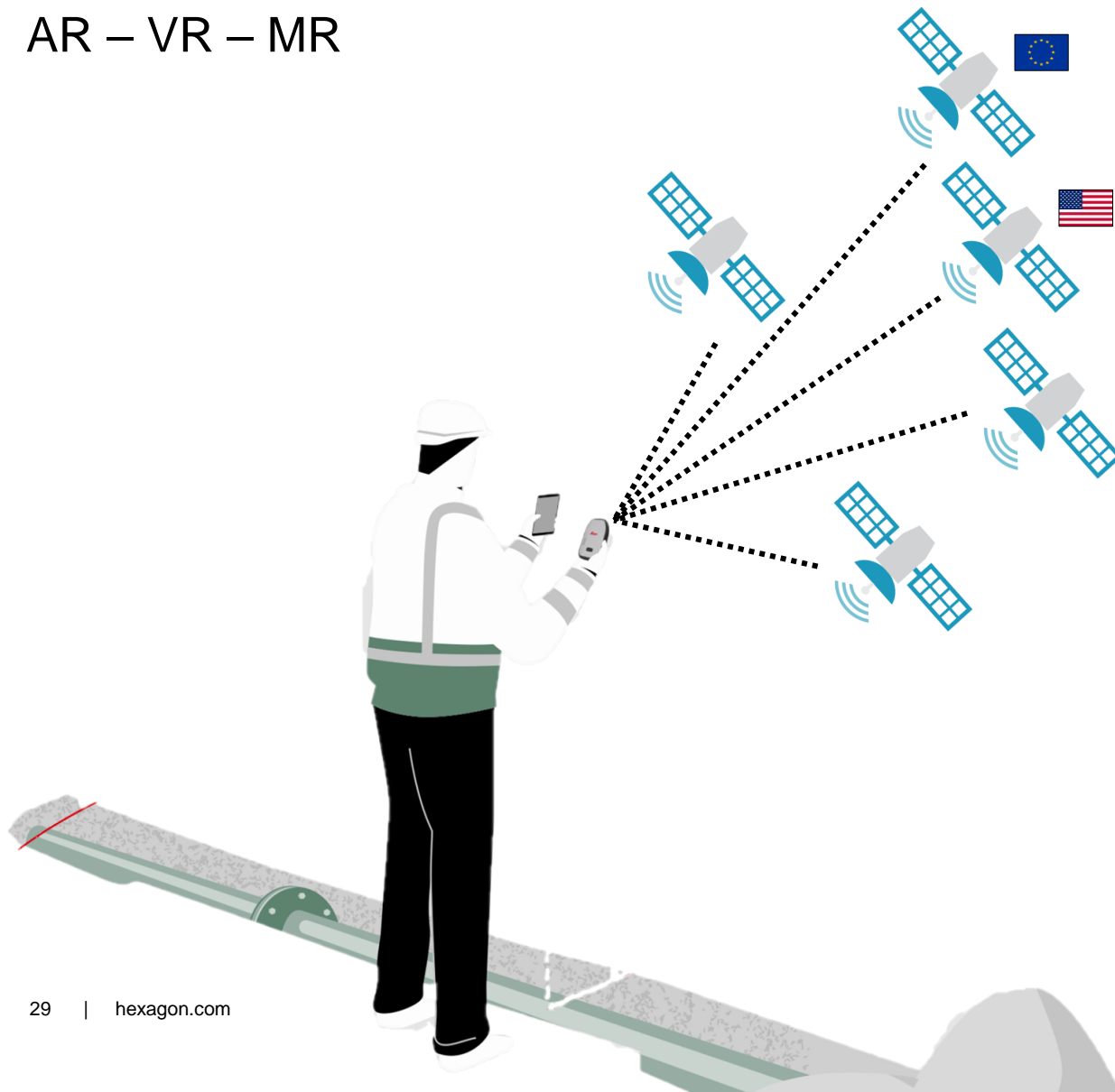
**MIXED
REALITY**



**VIRTUAL
REALITY**

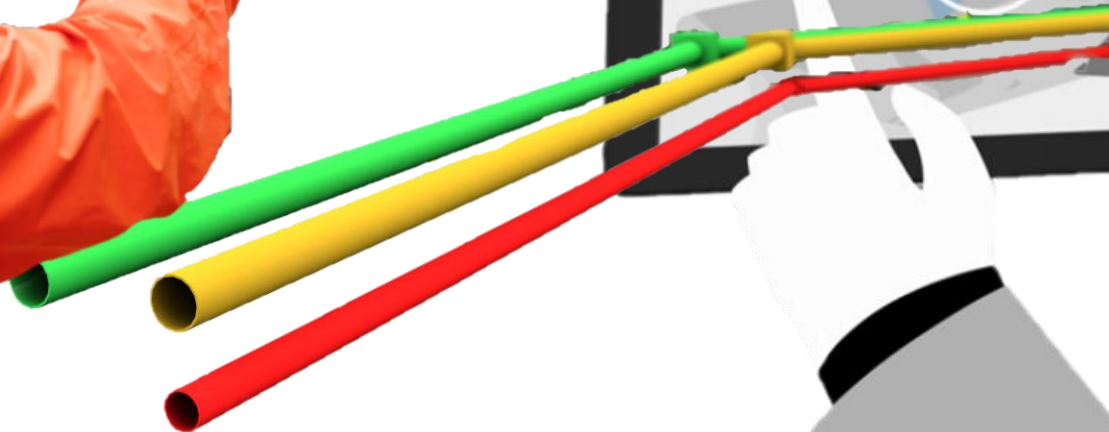
4. Toepassingen

AR – VR – MR





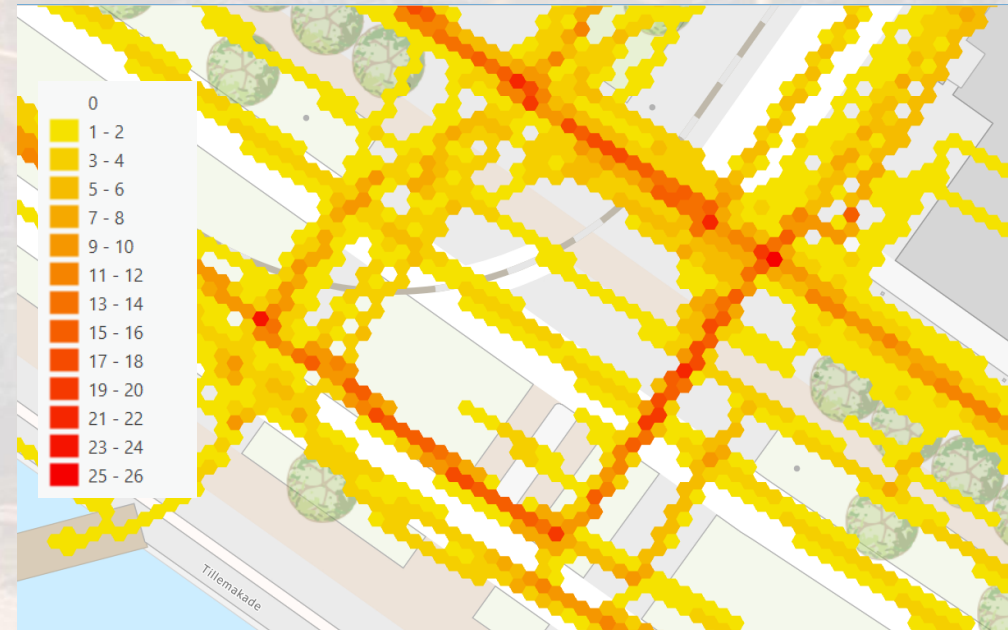
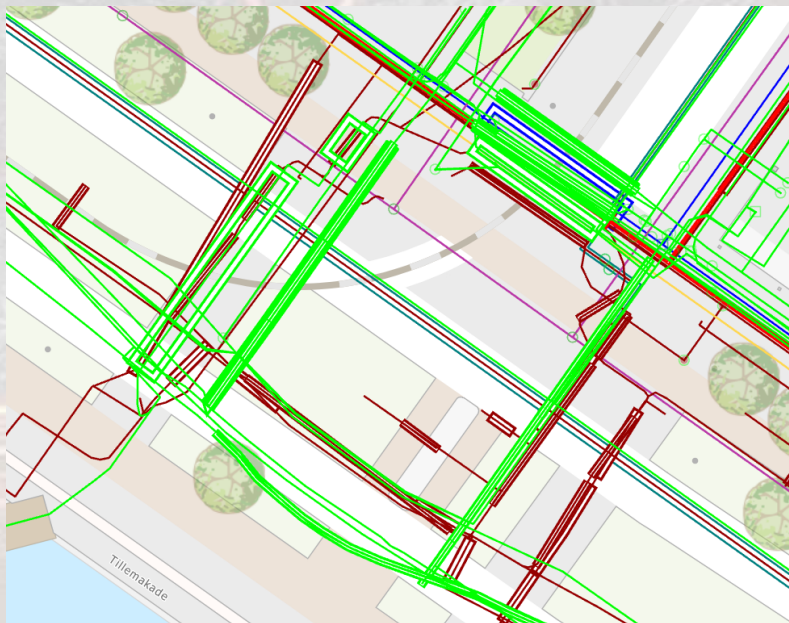
4. Toepassingen





KLIC Data

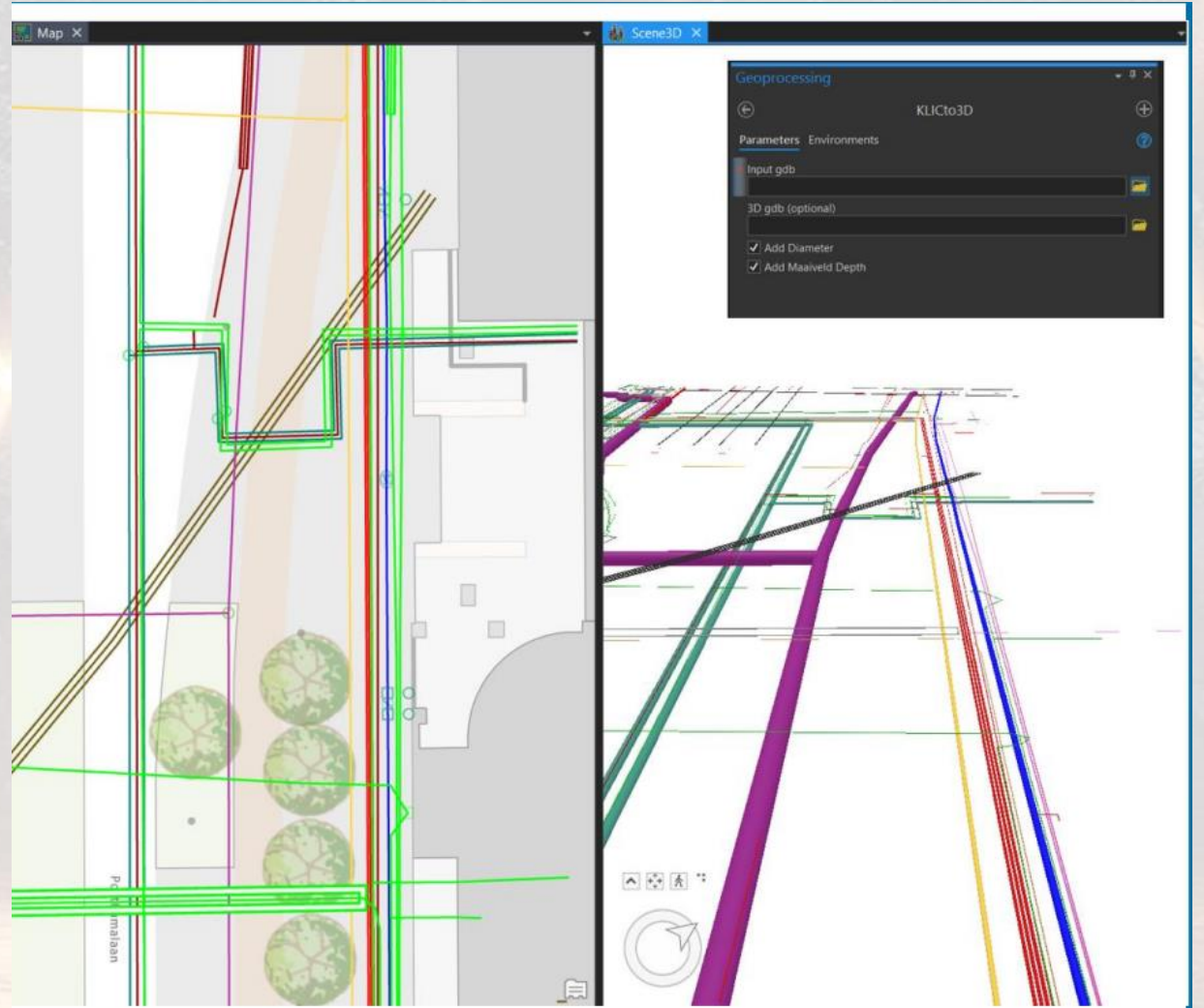
- Kadaster
- KLIC-Import





Agenda

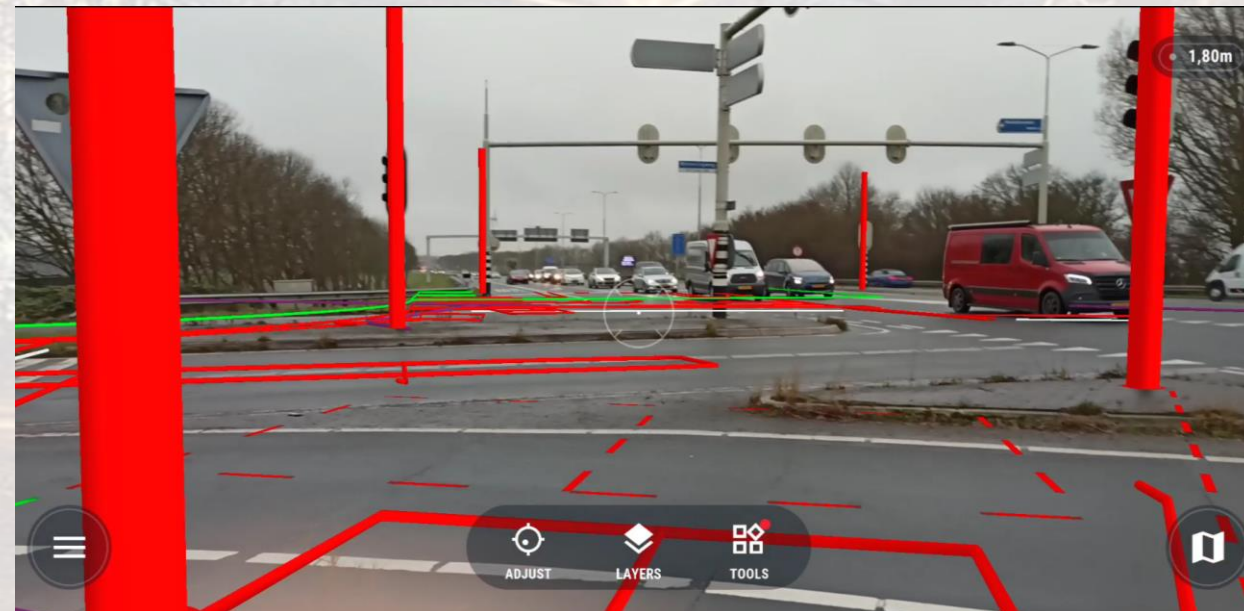
- KLIC Data
- Conversie naar 3D
 - Diepte & Diameter
- vGIS & Leica
 - AR
 - LiDAR





vGIS & Leica

- 3D data en modellen weergeven in augmented reality
- 3D data projecteren op straat
- Accurate GPS



21st Century
Solution

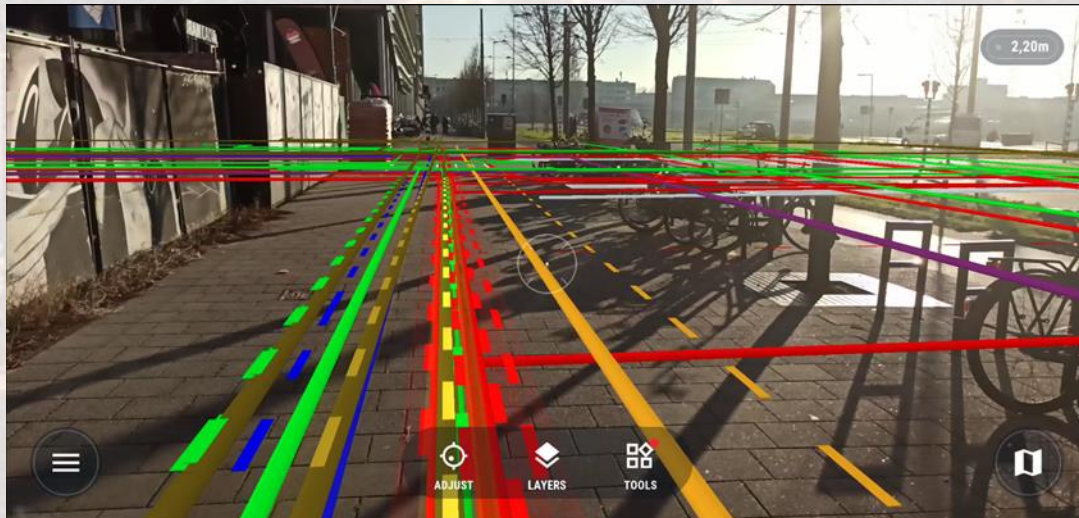
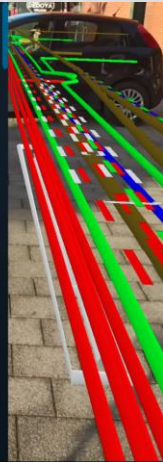


Funtionaliteit

- Accurate projectie data
- Bekijken van data
- Transparantie

OlieGasChemicalienPij... OlieGasChemicalienPijpleiding 14	
buismateriaalType	PVC
Discipline	distribution
Druk	0.1
DrukEenheid	bar
EindeLevensduurVer srie	

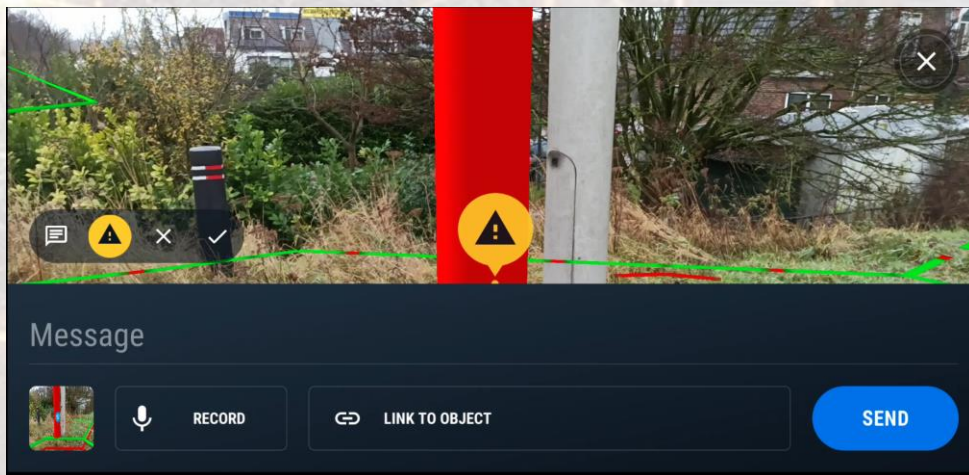
OlieGasChemicalienPij... OlieGasChemicalienPijpleiding 14	
ActueleStatus	functional
BeginLevensduurVer rsie	2000-01-01
Beheerder	Stedin B.V. Netbeheer B.V., S&O - KLIC (WIN) behee
BelanghebbendeLo kaalId	20G009498KL1081_Belangheb bende_20G009498-1





Funtionaliteit

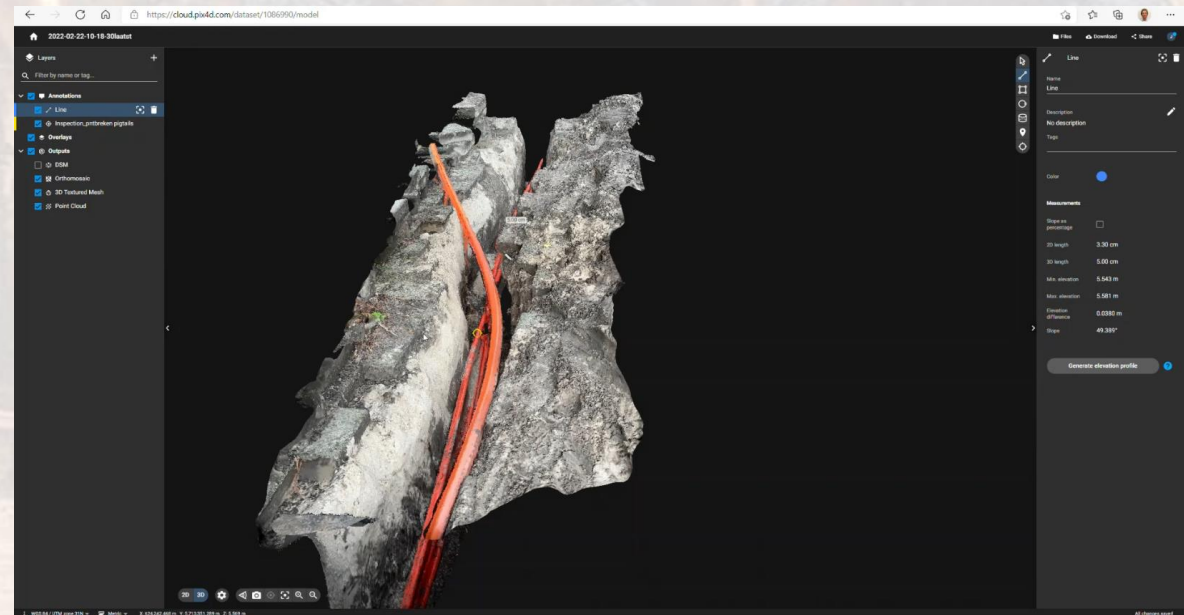
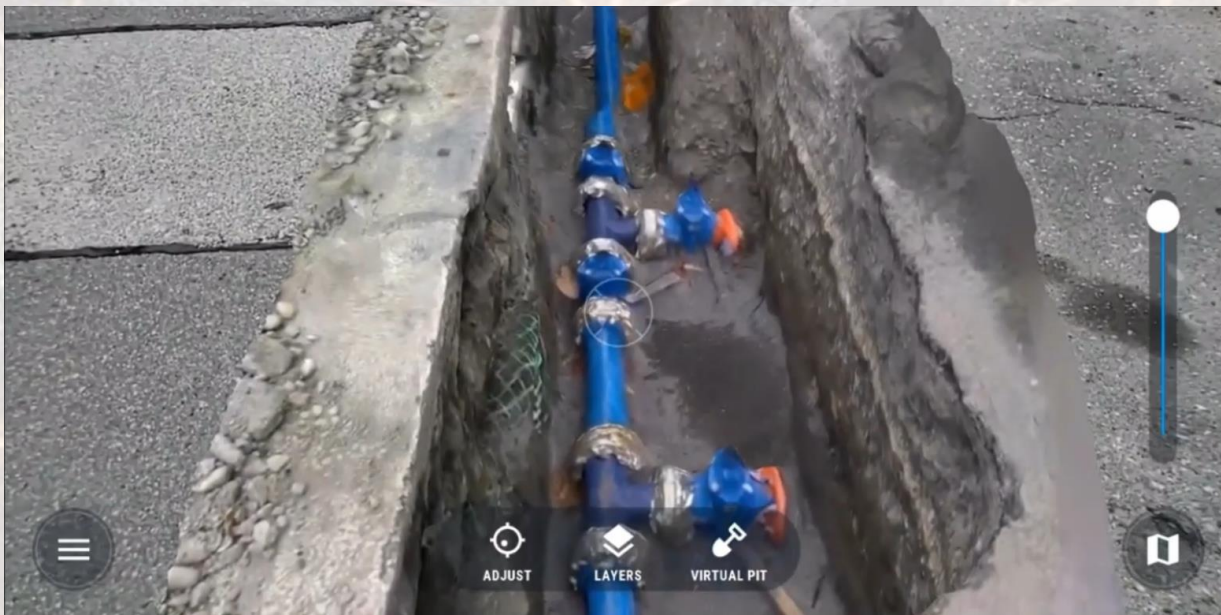
- Lagen aan en uitzetten
- Virtual Pit
- Toevoegen van opmerking





LiDAR

- LiDAR
- Projecteren 3D models & foto's in vGIS



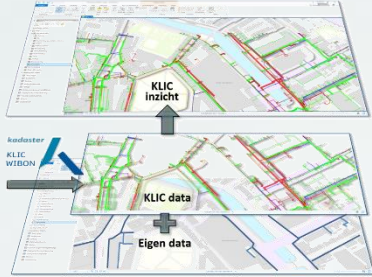


Digital Asset Innovations

**KLIC-informatie ontsluiten via Augmented Reality (AR)
door integratie van KLIC-Import met vGIS**



KLIC en eigen GIS data in Augmented Reality

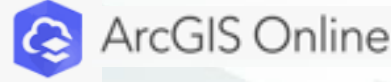


Xchange4s
KLIC - Import

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Construction Inc.
Construction Inc.

QUESTIONS

ANSWERS