Interreg Baltic Sea Region

EUROPEAN UNION

EUROPEAN REGIONAL DEVELOPMENT FUND

VillageWaters

Benchmarking session between pilots

Valkla and Kolgaküla Village Pilots

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Kuusalu Soojus Ltd Estonia

14th of March 2018, Riga, Latvia

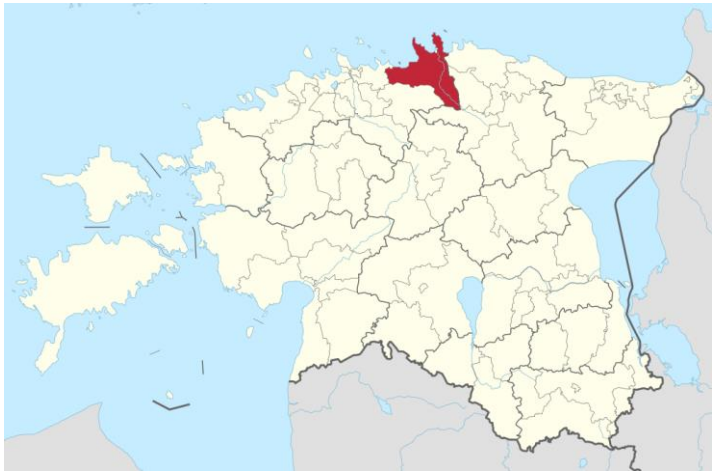
Project Partners, Estonia

- **Tallinn University of Technology/Tallinna Tehnikaülikool**
  as Project Partner No 14
- **Kuusalu Municipality/Kuusalu vallavalitsus**
  as Project Partner No 15
- **Kuusalu Soojus Ltd/Kuusalu Soojus OÜ**
  as Project Partner No 16

Kuusalu Soojus

- Field of activity - Utilities
- 100% of shares belongs to Municipality of Kuusalu
- Employees - 11
- Drinking Water - 11 regions
- Wastewater - 5 regions
- District Heating - 2 regions

Kuusalu parish



Kuusalu Soojus

Drinking Water – 11 regions

Kuusalu Soojus

Wastewater – 5 regions

Kuusalu Soojus

District Heating – 2 regions

Valkla village pilot

- The pilot plant is located in the northern Estonia village of Valkla, Kuusalu parish, Harju county.
- The pilot object is the sewage treatment system of **two apartment buildings (49 inhabitants in total)**
- The existing (not used for years) wastewater treatment systems were constructed in the end of the 1970s
- Until the construction of the new pilot, the households' **sewage was collected into concrete holding tank** and gully-emptier trucks transport it to the nearest WWTP.

Valkla village pilot

Situation before

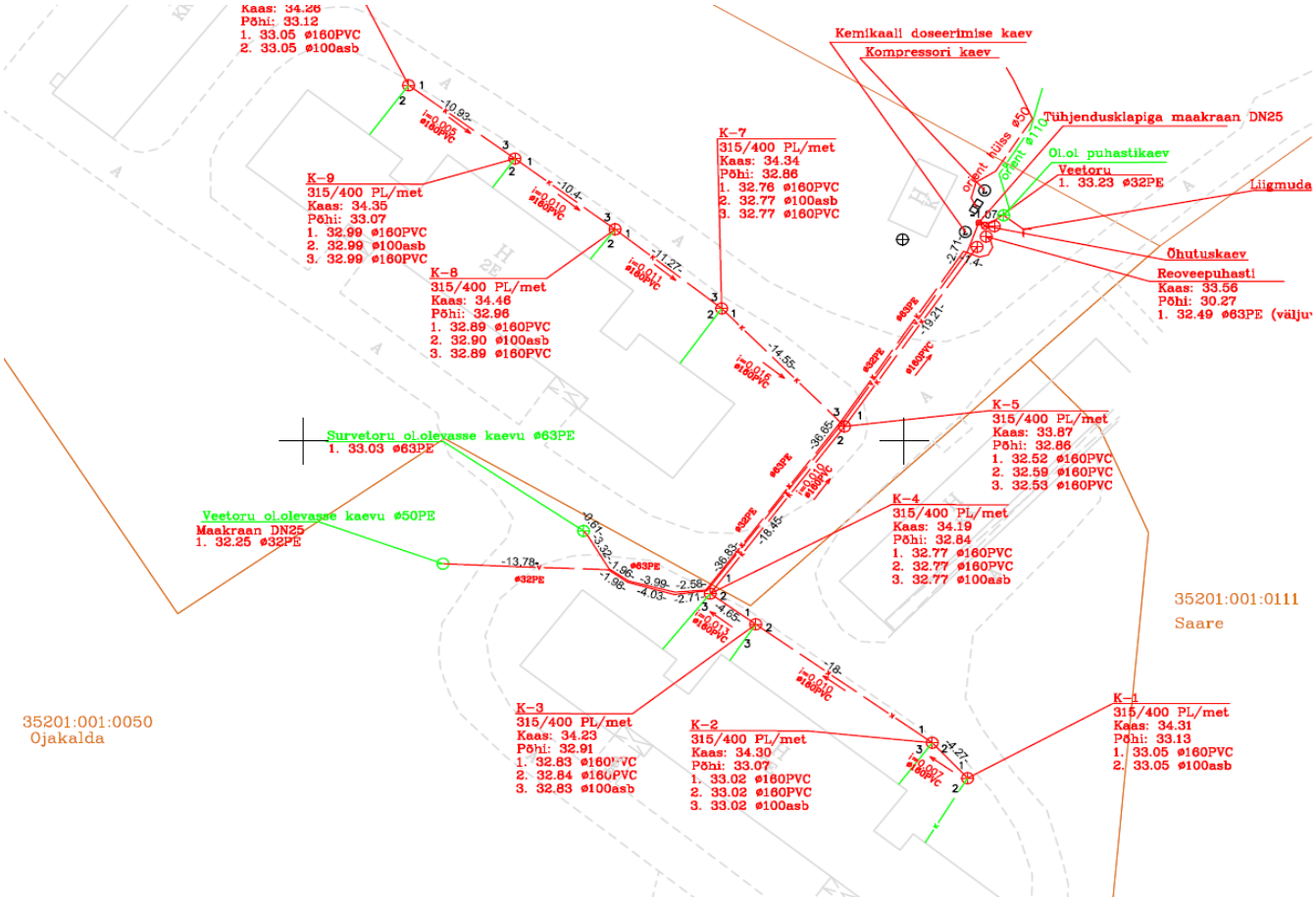
Valkla village pilot

Situation before

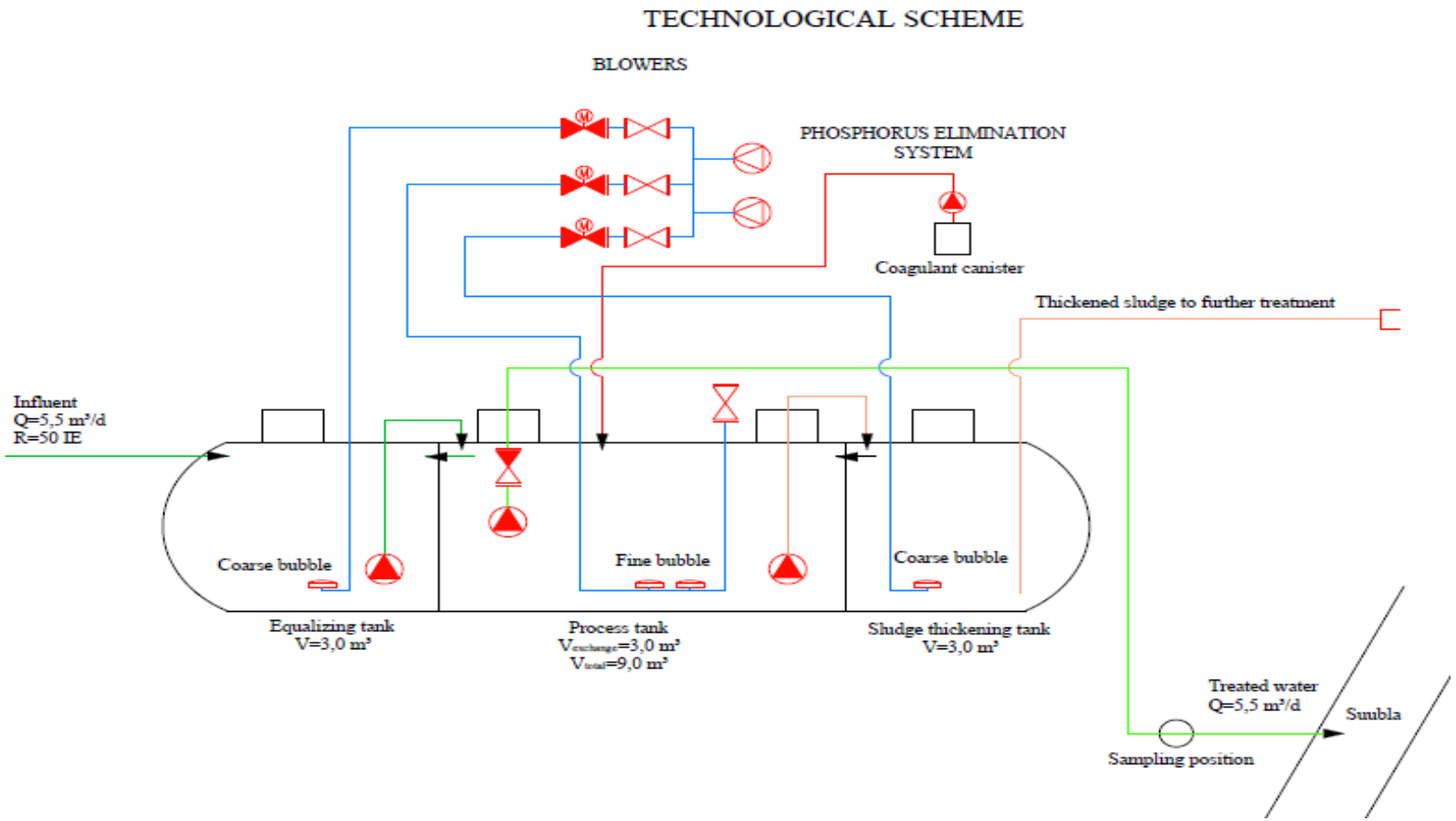
Valkla village pilot

- Biological wastewater treatment system, Sequence Batch Reactors (SBR), with **activated sludge process**
- Construction of new WWTP and renovation of local pipelines **was conducted in November 2017**
- **TTÜ is responsible for monitoring** the treatment efficacy of new system and for the environmental status of Valkla creek

Valkla village pilot



Valkla village pilot

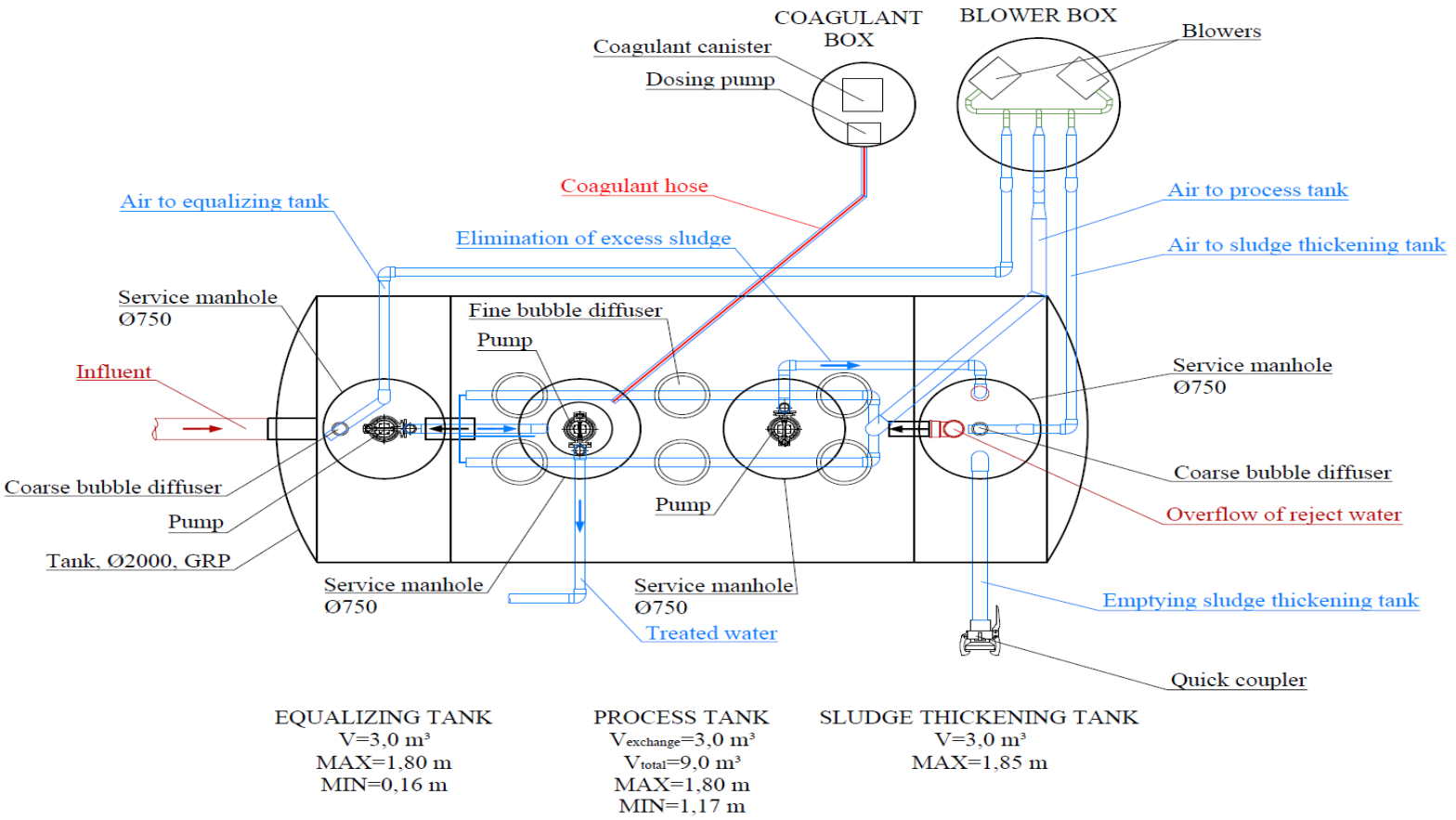


KESKKOND & PARTNERID OÜ
Reg. nr. 11006388
Vasara 50, Tartu 50113, Estonia
Tel. 733 0350; Fax. 730 4448

Object	VALKLA WWTP
Drawing	Plan of WWTP

Valkla village pilot

PLAN OF WASTEWATER TREATMENT PLANT



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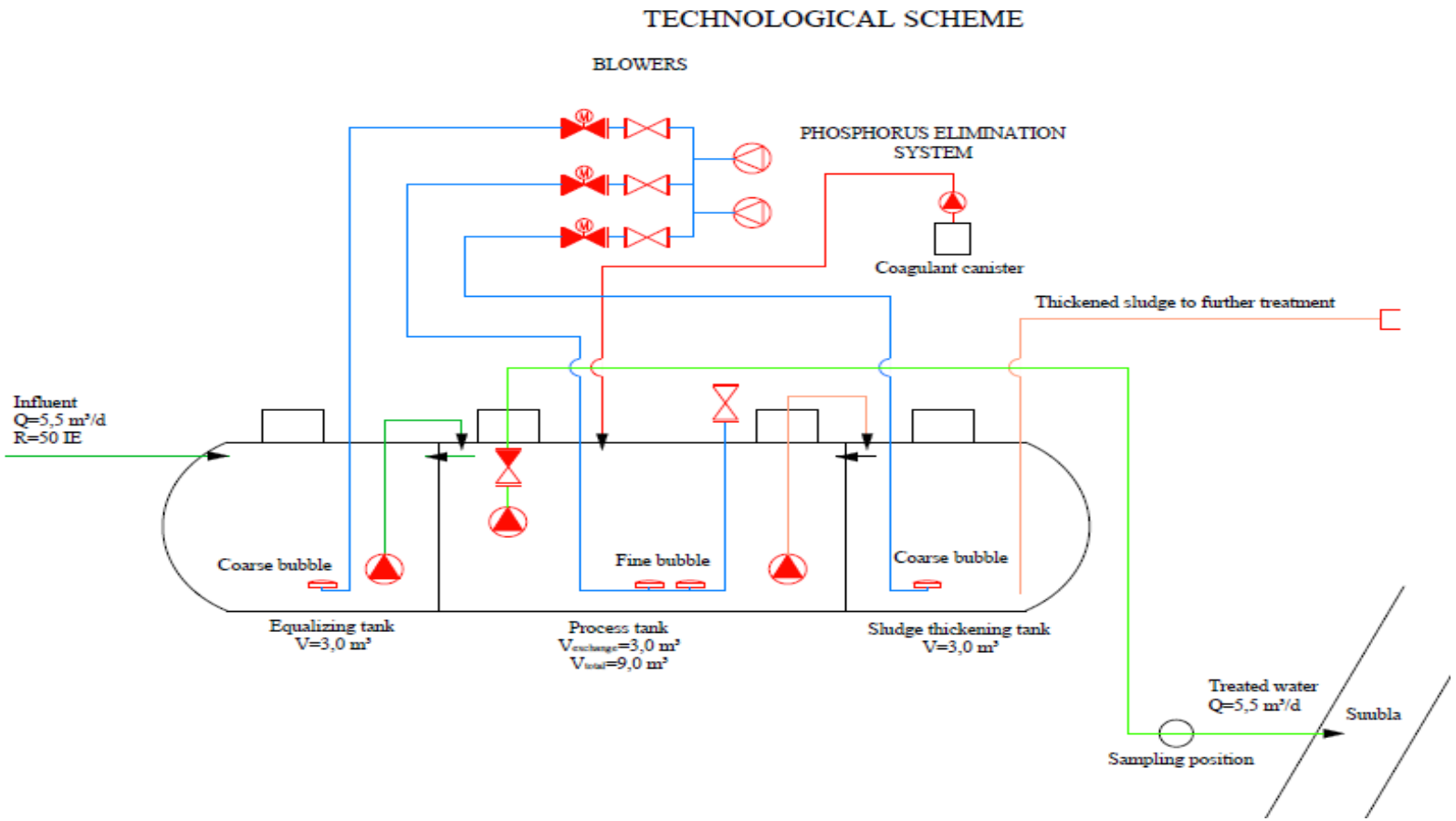
Valkla village pilot



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Object	VALKLA WWTP
Drawing	Plan of WWTP

Valkla village pilot

Valkla village pilot

Situation after

Valkla village pilot

Valkla village pilot

Situation after

Kolgaküla village pilot

- The pilot plant is located in northern Estonia, in the county of Harju, Kuusalu parish, Kolgaküla village
- Kolgaküla is located in the western **part of Lahemaa National Park**, about five kilometers away from the sea
- Kolgaküla (Kolco) is an ancient village, which was first **mentioned in written records in 1290**
- The pilot object is the separate sewage treatment system for **two apartment houses** (33 inhabitants in total).
- The existing wastewater treatment solution is biological oxidation ponds (2500 m^2)

Kolgaküla village pilot

Situation before

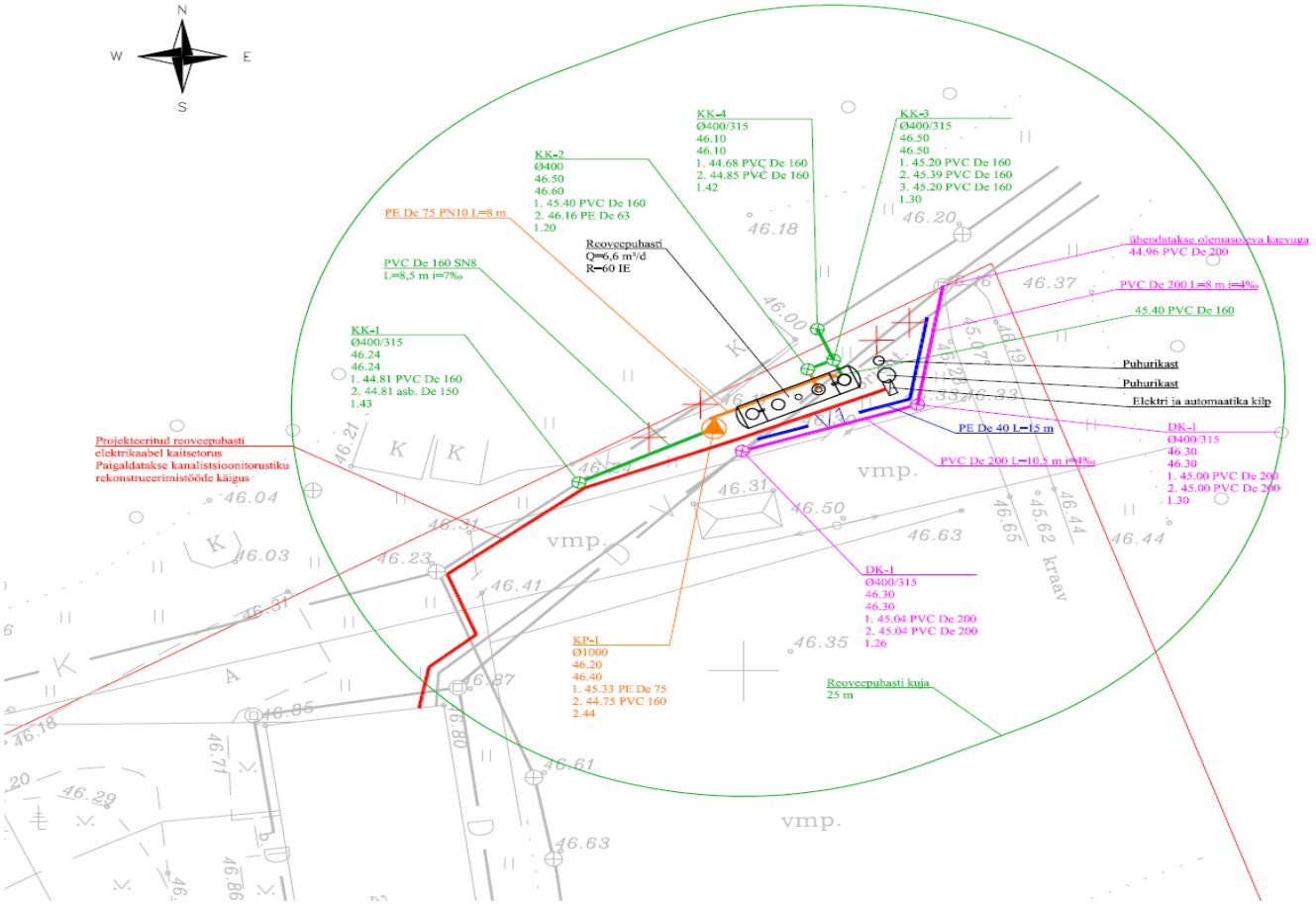
Kolgaküla village pilot

Situation before

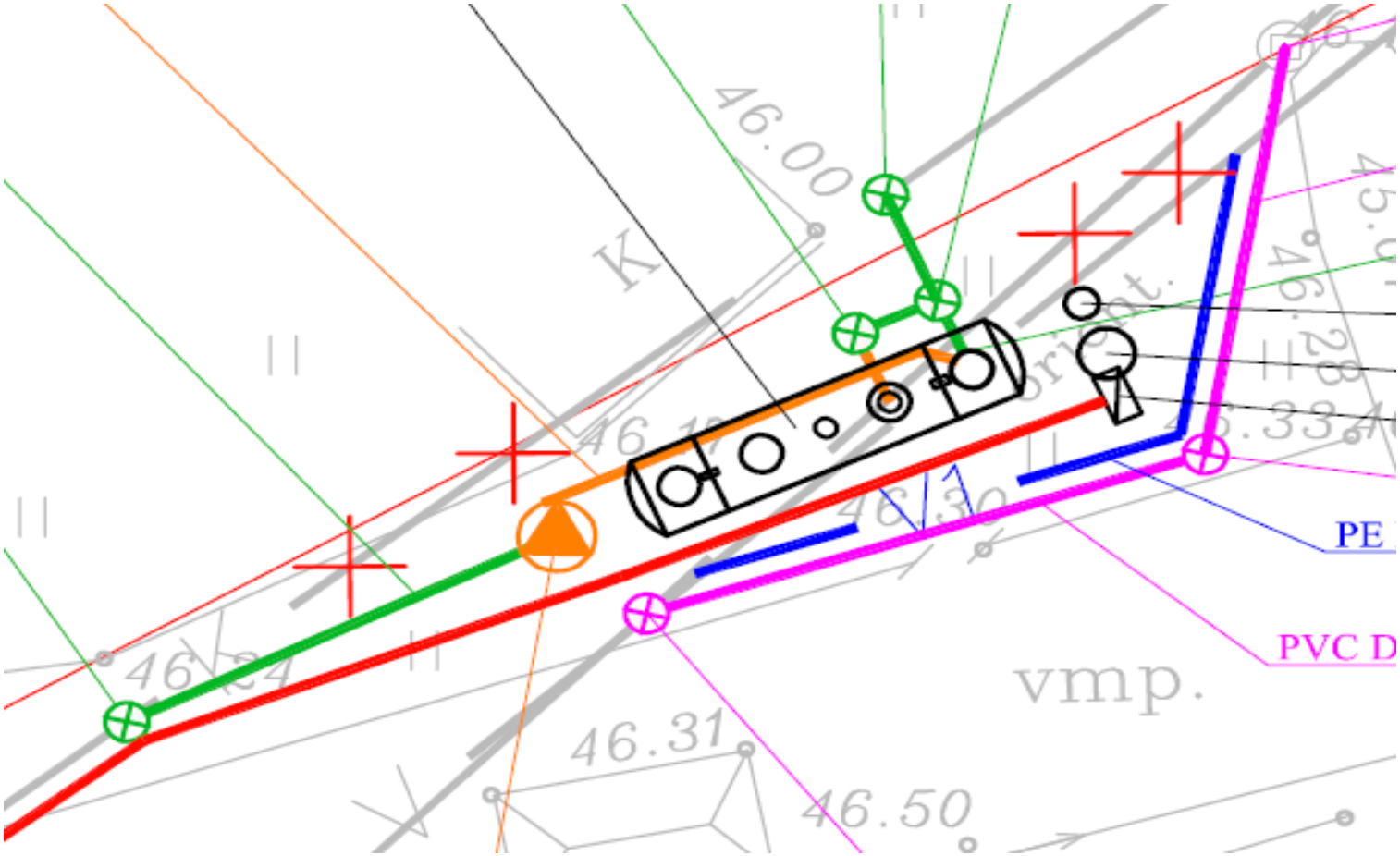
Kolgaküla village pilot

- There will be installed biological wastewater treatment syste, Sequence Batch Reactor (SBR) with **activated sludge process**
- Construction of new WWTP and renovation of local pipelines was **conducted in February 2018**
- **TTÜ is responsible for monitoring** the efficacy of new treatment system and for the environmental status of Puntsu creek

Kolgaküla village pilot



Kolgaküla village pilot



Kolgaküla village pilot

Situation before

Kolgaküla village pilot

Kolgaküla village pilot

Situation after

Valkla and Kolgaküla village pilots costs

	Valkla	Kolgaküla
SBA Reactor, €	9 200	9 200
Installation, €	8 000	8 000
Pipeline, m	190	290
Pipeline, €	18 000	26 000
Installed reactor, €	17 200	17 200
Totally, €	35 200	43 200

Valkla and Kolgaküla village pilots, summary

- Relatively small cost can bring big invironmental benefit
- The same equipment from the same manufacturer has made both projects cheeper and service easier
- Only 2 weeks for installation for WWTP and additional 2 - 3 weeks for pipeline and problem is solved
- Often is only installation of WWTP not the best solution
- Two similar villages are for us on the waiting list

Valkla village pilot

- The plant uses Activated Sludge-technology with Sequence Batch Reactor.
- The process stages are microbiological degradation, chemical fixation of P, sedimentation.
- The daily design parameters are
  - 6.6 m3 of waste water
  - 3.6 kg BOD
  - 660 g nitrogen
  - 110 g phosphorus
  - sludge formation is 18 m3 / year
- The purification efficiencies are 80 % for BOD, 30 % for nitrogen and 70 % for phosphorus

Kolgaküla village pilot

- The plant uses Activated Sludge-technology with Sequence Batch Reactor.
- The process stages are microbiological degradation, chemical fixation of P, sedimentation.
- The daily design parameters are
  - 5.5 m3 of waste water
  - 3.0 kg BOD
  - 550 g nitrogen
  - 90 g phosphorus
  - sludge formation is 18 m3 / year
- The purification efficiencies are 80 % for BOD, 30 % for nitrogen and 70 % for phosphorus

Thank You!

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