**MUSTBE**

**PORI PILOT SITE**
**KESKUSAUKIO – CENTRAL**
**SQUARE**
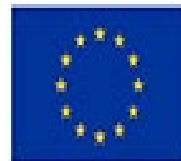
Location:

West coast of Finland,

in Pori,

- catchment area,

     1700 m²

- Landuse:

     - Urban 100 %

Soiltype:
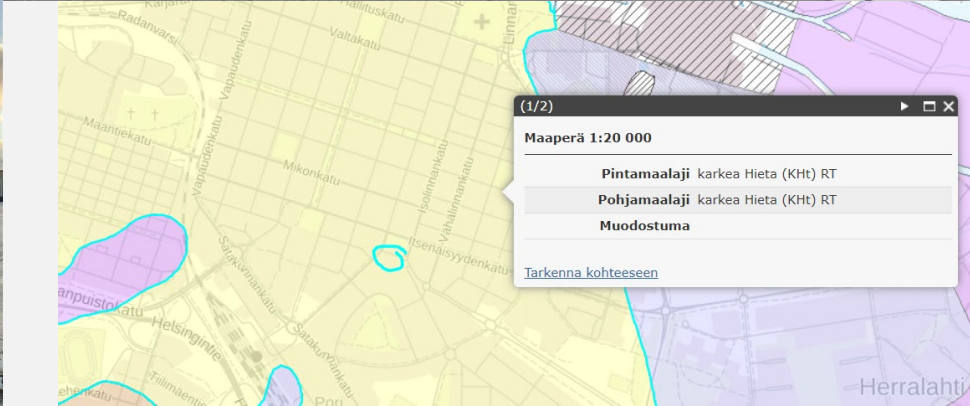
     fine sand, infiltration
     possible

# CENTRAL SQUARE

(1/2)

**Maaperä 1:20 000**

| | |
|---|---|
| **Pintamaalaji** | karkea Hieta (KHt) RT |
| **Pohjamaalaji** | karkea Hieta (KHt) RT |
| **Muodostuma** | |

Tarkenna kohteeseen
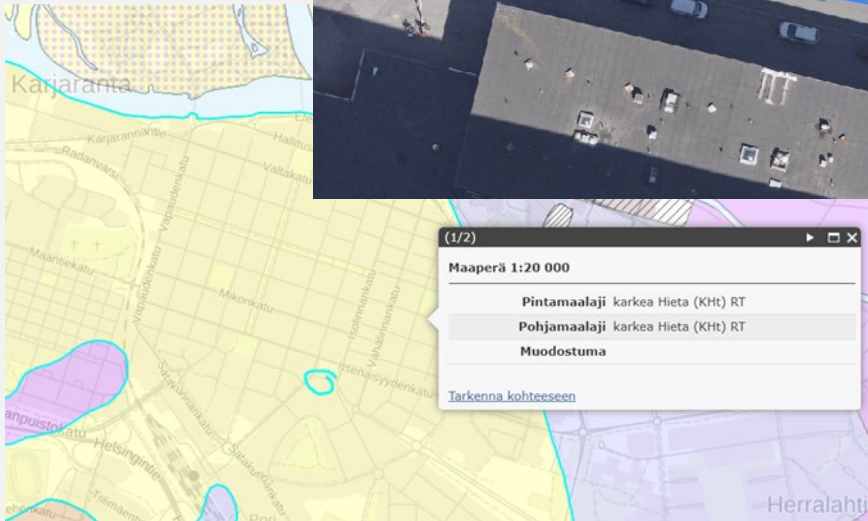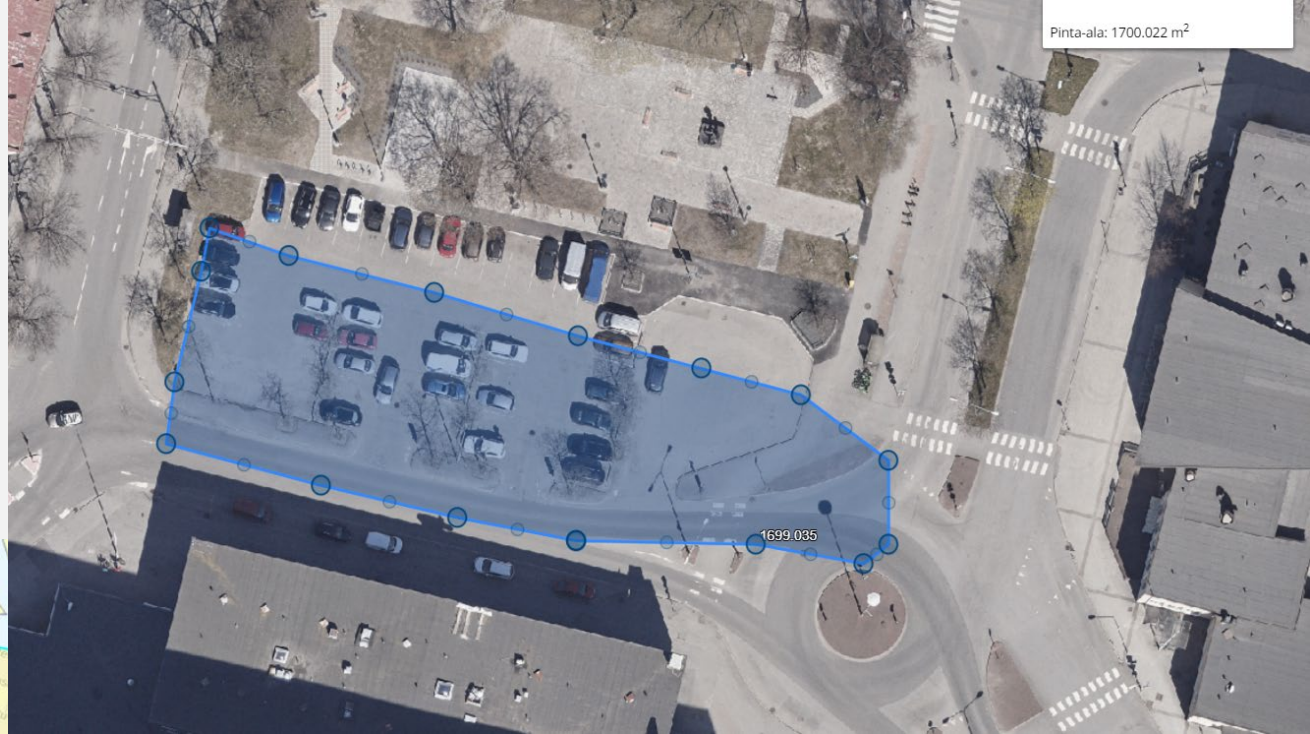
# CHALLENGES

- Dense city area,

- Little space for ordinary NBS-structures.

- Create a model; How to build greener streets in Pori

- Storm water pipe network is full of water when it's raining heavily, that's why detention and infiltration is needed

- How to measure the amount and quality of storm waters that flows to storm water pipe network

- In parking place we are trying to save as many parking places as possible

- How to guide pedestrians to legal routes

- District heating line melts snow and ice at wintertime, how to guide these waters so that those will not block the structure

- How to protect trees from colliding cars and snowplows

- Which trees can handle substances from street waters

- Trees should stand dry seasons and flooding

- Winter time snow-water-ice-snow water-ice

# Winter 2023-2024
## Some more challenges



Snow melts-freezes-melts-freezes…->ice-water

Latest plan

Street arboretum

More green, different species of trees, bushes, hays

Permeable surface, stormwater tiles

Nykyiset puut 3 kpl ja nurmialue säilytetään

Nykyinen reunakivi linjataan uudelleen

Heinät 8 m²
Lu sy 16 kpl
Ph ar 11 kpl
Mi si 5 kpl

Putkilinjan suoja-alue, leveys 2,5 m putken keskilinjasta

Heinät 8 m²
Lu sy 16 kpl
Ph ar 11 kpl
Mi si 5 kpl

Nykyinen reunakivi linjataan uudelleen

Heinät 9 m²
Lu sy 19 kpl
Ph ar 12 kpl
Mi si 6 kpl

Qu Ro F

So hy

Ac pl C

Yht. 45 ap + LE-paikka

Be pe F

So th F

Po tr E

Ac pl C

So hy

Qu Ro F

Infokyltti

Pi sy

Qu ro

Ul la

Qu ru

Hulevesipainanne, painanne 1, ks. istutuskaavio

Al gl q

Fr pe

Al gl

Hulevesipainanne, painanne 2, ks. istutuskaavio

Painanteen pohja

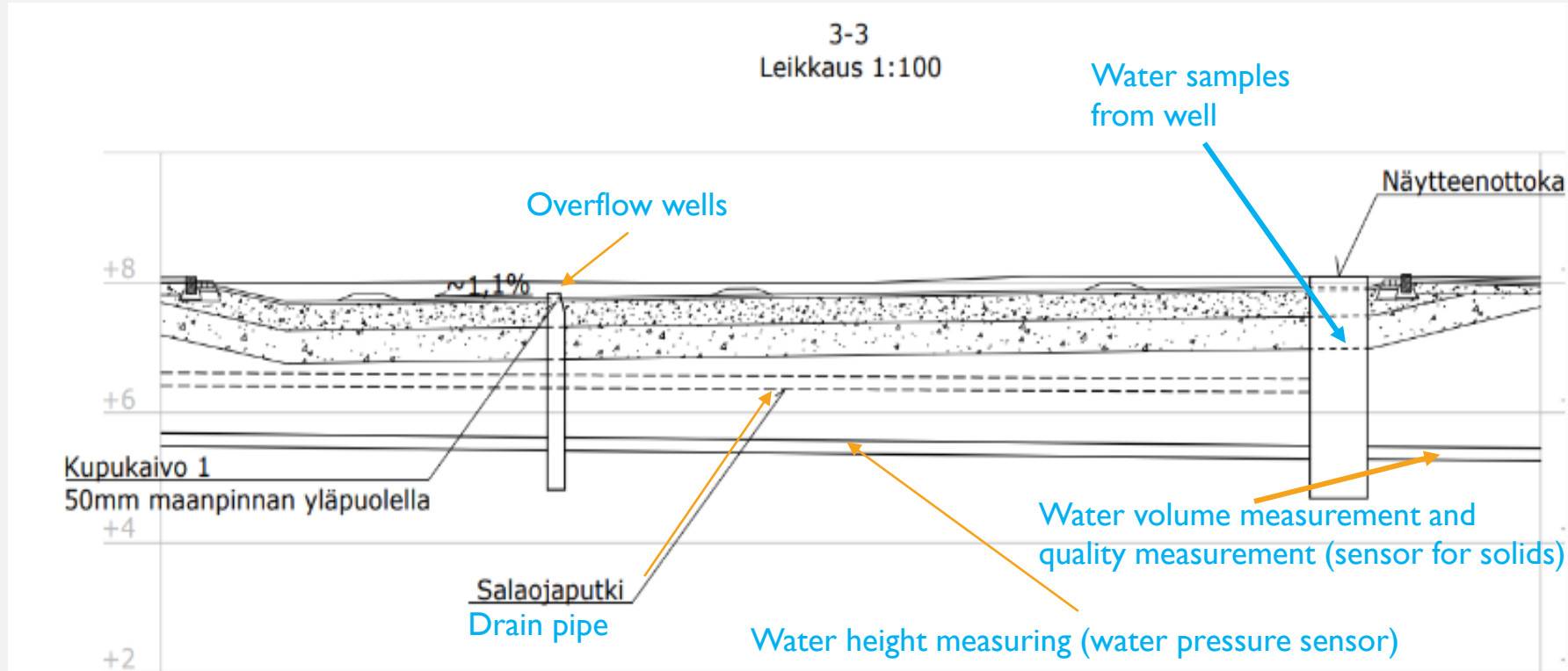Surface levelling so that most waters will flow to green lanes

Istutusalue, ks. detaljipiirustus 2

7

Cross section of green area where storm waters are filtrated through gravel and sand layers

Some water is infiltrated to base soil and overflowing waters will flow to storm water pipe network
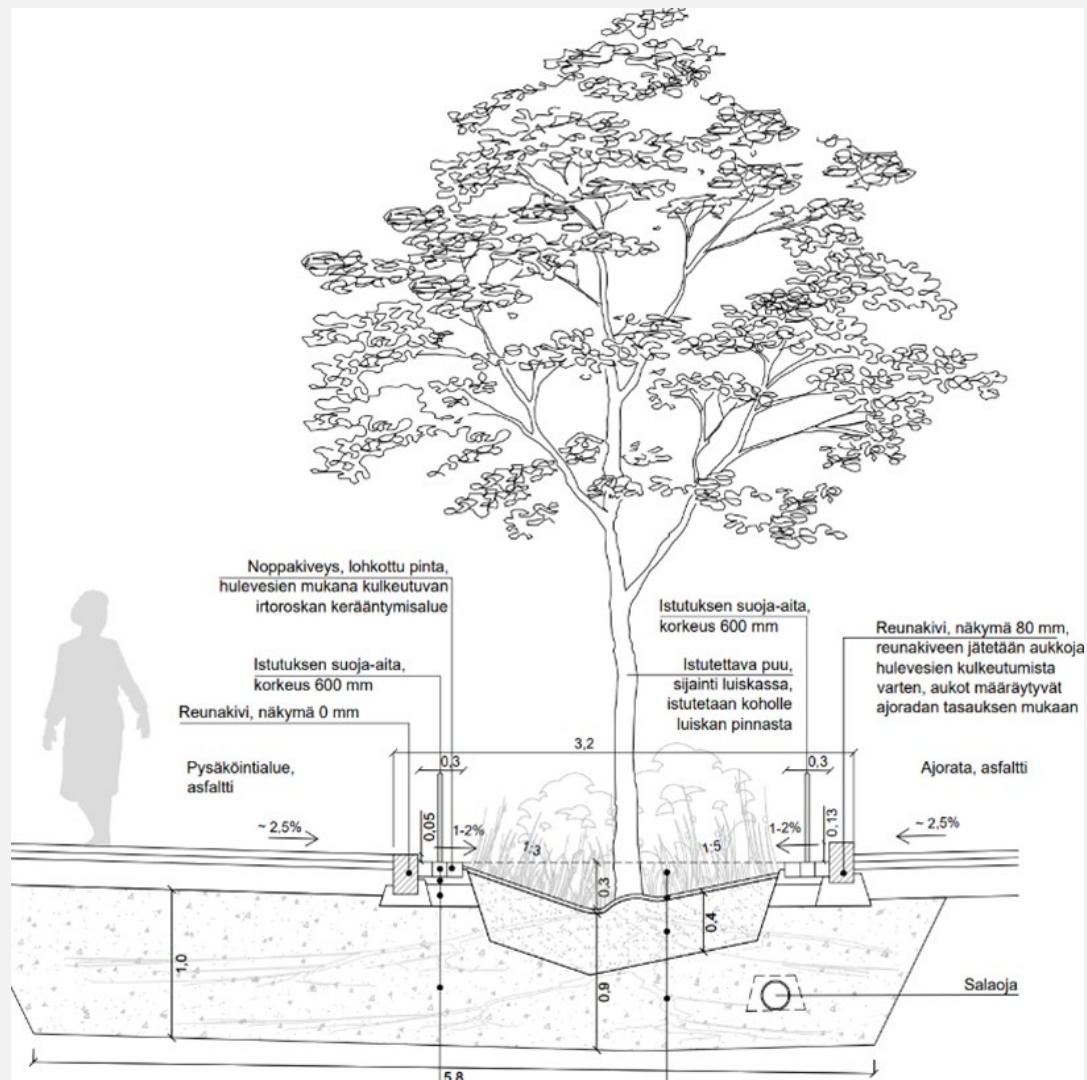
# How to monitor and prove our methods are working



3-3
Leikkaus 1:100

Water samples from well

Näytteenottoka

Overflow wells

~1,1%

+8

+6

Kupukaivo 1
50mm maanpinnan yläpuolella

+4

Water volume measurement and quality measurement (sensor for solids)

Salaojaputki
Drain pipe

+2

Water height measuring (water pressure sensor)

longitudinal section

# Trees should be protected



savyihin sopiviksi

Mikäli korkeus 600 mm riittää
vaakajuoksu yhdelle korkeudelle

Kaikki osat irrotettavissa

Sisäputki puun tuentaa varten

Lattaraudat 50mm x 5mm kiinnitetään
pylvään molemmin puolin rst-pulteilla

Pylväät, pyöreät tai neliskulmaiset
metalliputket Ø 60mm
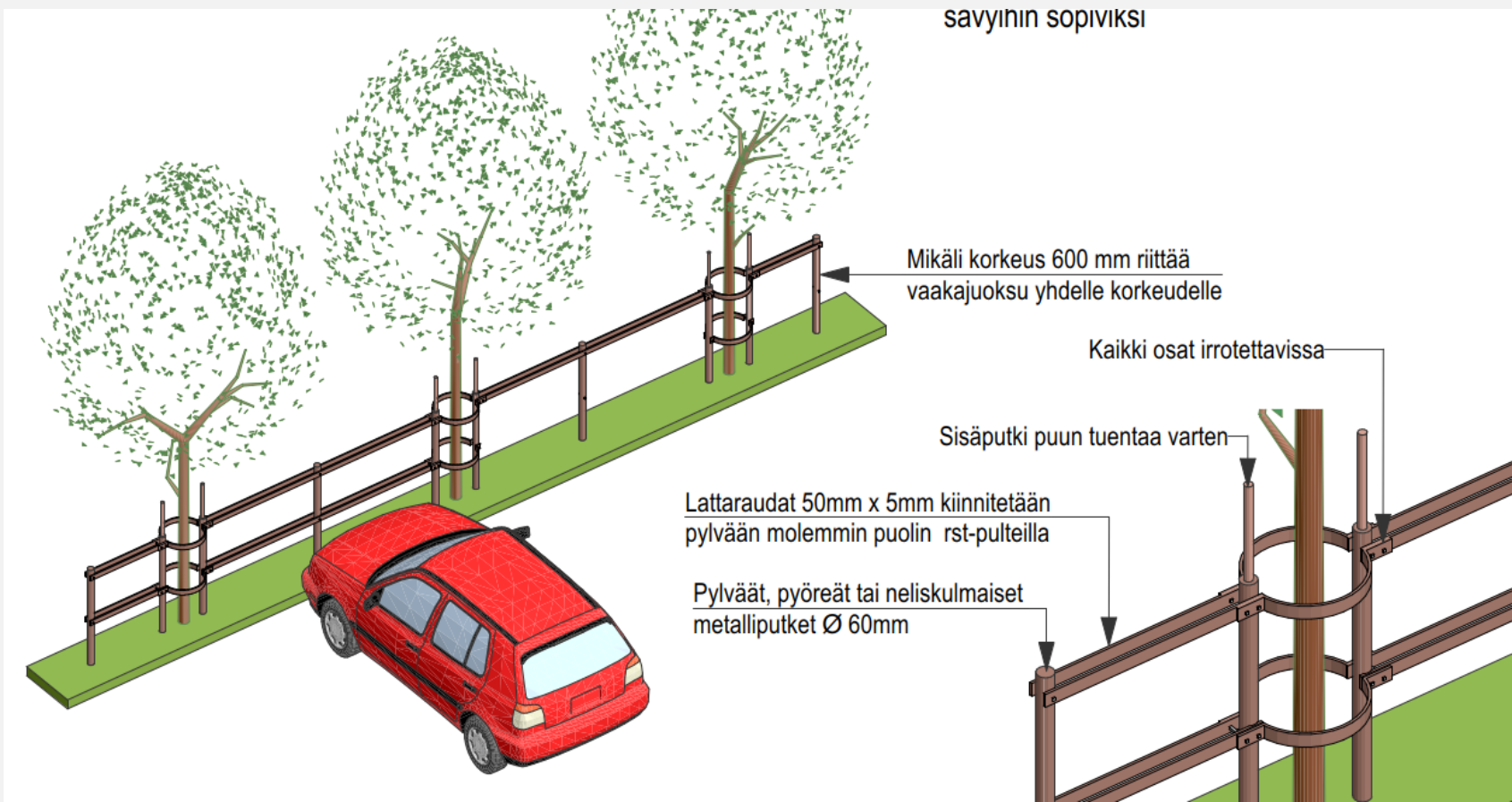
- Plans will be finalised by mid-march

- Procurement documents should be ready by the end of March

- Call for tenders phase lasts about one month

- At the beginning of may Contractor is chosen and construction contract is signed

- Construction period is from June to August.

- Measurement devices are being placed during the construction.

- Monitoring begins…

# TARGET REDUCTIONS FOR EMISSIONS

Suspended solids 60% - measured

Total nitrogen 30% - measured

Hydrocarbons (oil products) 50% - calculated, assumed based on correlation with suspended solids

Metals 40% - calculated, assumed based on correlation with suspended solids

Thank you!