

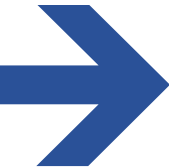
Procurement of the charging infrastructure for Helsinki ebus piloting and beyond

Pilot and project



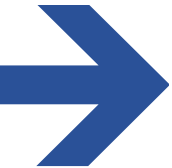
Pilot

- Electric buses needs charging infrastructure to Helsinki
- Helsinki City Transport (HKL) is working with public transport (metro, tram, ferry) in Helsinki City
- Helsinki Region Transport (HSL) is owner of (pilot) buses
- Pilot for charger infrastructure started in April 2015
- HKL is owner of charging infrastructure



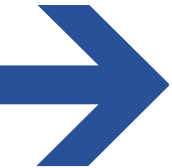
Buslines and permits

- On summer 2015 HSL decides ebus buslines
- 5 lines, 4 lines ends to Central Railway station
- Buslines are from 8 km to 18 km long
- Chargers are on both ends of buslines
- Main point for construction; charging on bus stop, no transition time for buses



Buslines and permits

- Existing bus stops available
- Challenges
 - Ebus radius vs bus stop, parking place etc
 - Charger location near bus stop
 - Pole´s height
 - Other buslines on same bus stop
 - Buslines scheduling



Buslines and permits

- One bus stop is not on public area, private owner
- Challenges
 - Acceptation, Documents and plans for permit
- Permit processing from different department´s of Helsinki City takes some weeks
 - Permitting Authorities
 - Building Control
 - City Planning Department
 - Cityscape Advisory Board



Visible

Pylon, shaft, canopy

- Planning started in August 2015
- Statements from several specialists
- Architect for environmental
- Mechanical engineering
- Electrical engineering
- Groundwork specialist
- Engineering workshop
- Bus manufacturer (pantograph)



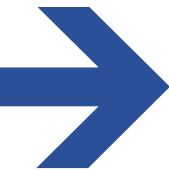
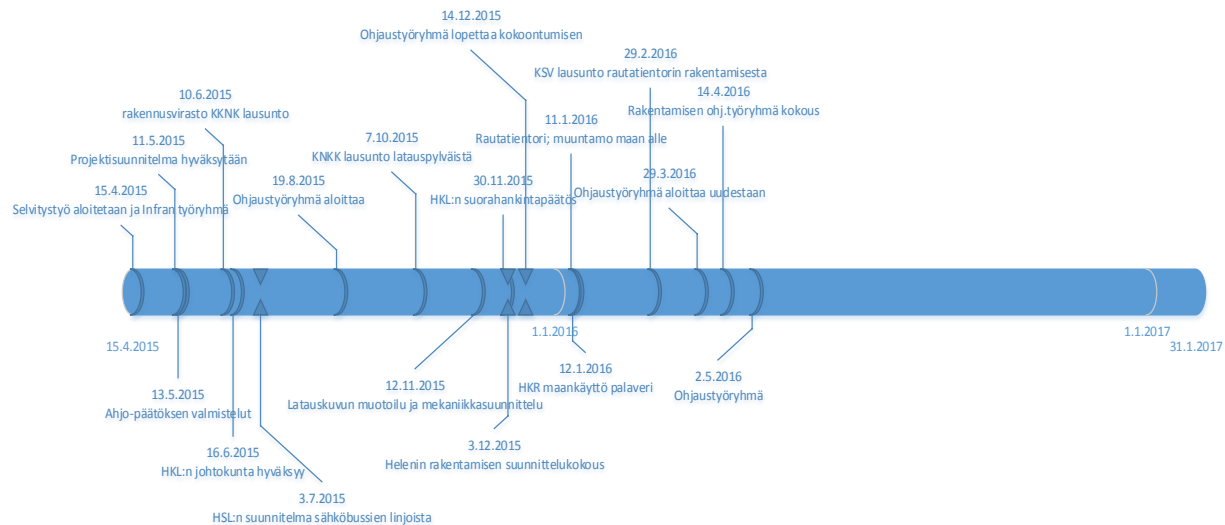
Visible

- Transformer room covered by wood
- Architect for environmental
- Mechanical engineering
- Electrical engineering
- Groundwork specialist
- Engineering workshop
- Bus manufacturer (power)
- Charger manufacturer



Timetable 15.4.2015 - 31.1.2017

- What have been done?
- A lot of meetings



Central Railway station

2 poles with double shaft

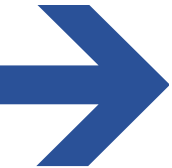
Technical solution installed underground

4 buses can charge batteries at same time

On same area can be built later more quick-chargers for electric buses

Challenges

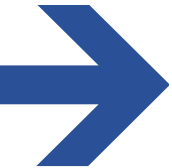
- Public transport is driving on area of under construction about 5 months
- Underground building for chargers is build up under bus stops
- Chargers and electrical systems needs underground area about 80m²



Central Railway station

Challenges

- Chargers must be near of bus stop for losses and cabling sizes
- Ground: sand, mud, water or something else?
- Landscaping
- Area is famous for architectural and historical buildings
- Future and construction plans for Central Railway station





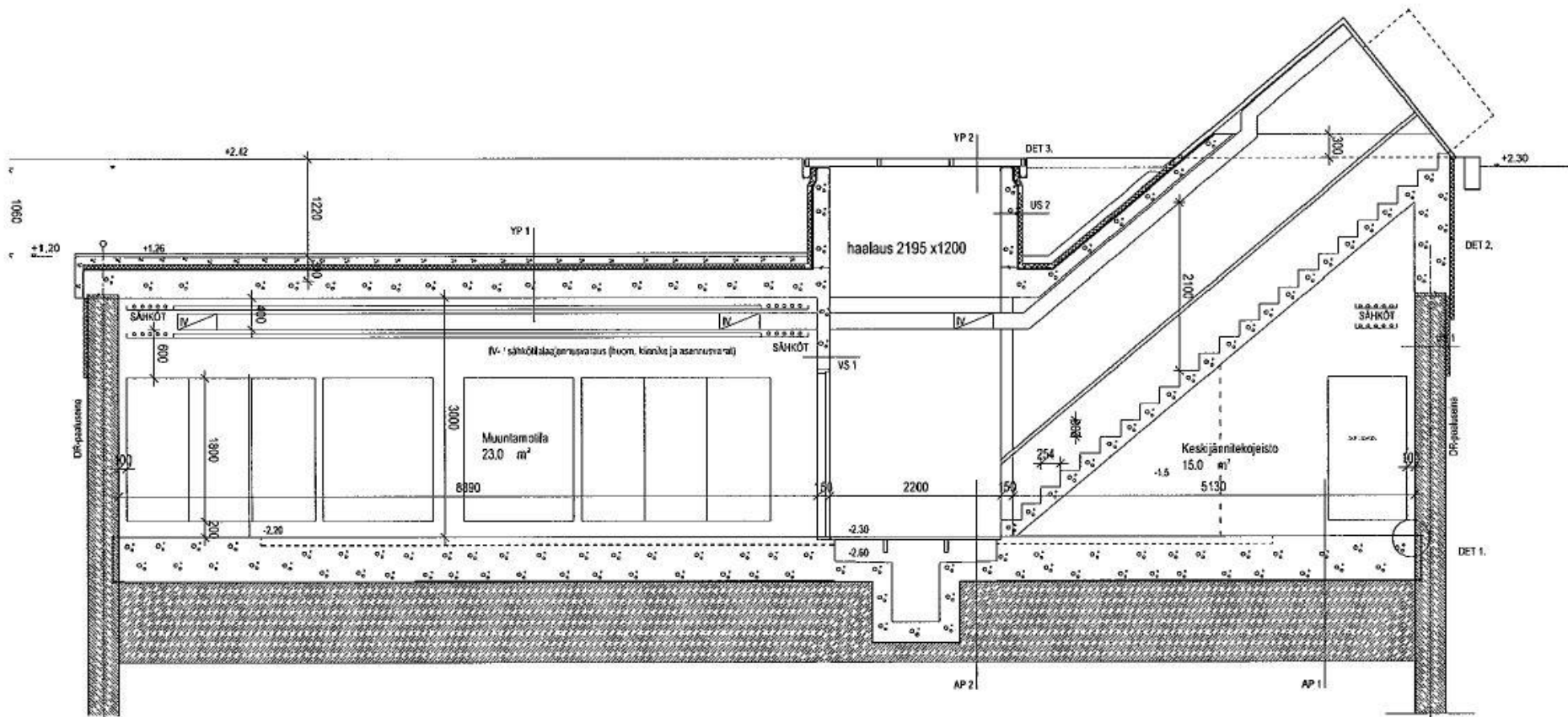
23 Ruskeasu
Brunakärr

55 Koskela
Forsby



Linkker 13

Linkker 13



Project has been started...

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