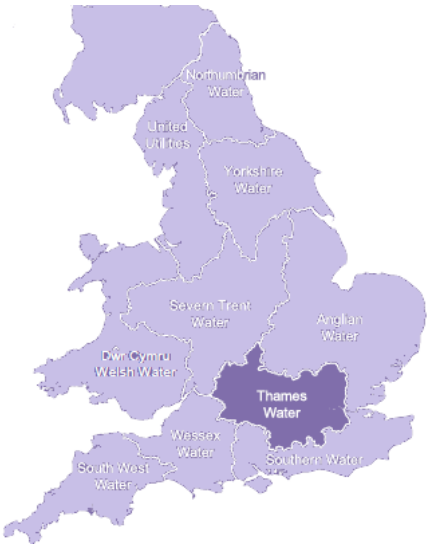
INNOVATION
making cool stuff happen

Smart Water 4 Europe:

Creating the business case for smart water networks

Thames Water

Key Facts



UK's largest water and wastewater services provider with

15 million customers and 4,700 employees

Water services

9 million clean water customers in London and the Thames Valley

An average of 2,600m litres of drinking water supplied per day

Operation and maintenance of 102 water treatment works, 30 raw water reservoirs, 288 pumping stations, 235 clean water service reservoirs and 32,000km of water mains

Our tap water costs less than a tenth of a penny per litre

Drinking water quality is meeting 99.99 per cent of stringent tests (500,000 tests/year)

Sewerage services

15 million wastewater customers

350 sewage works treating an average of more than 4.4bn litres per day of wastewater

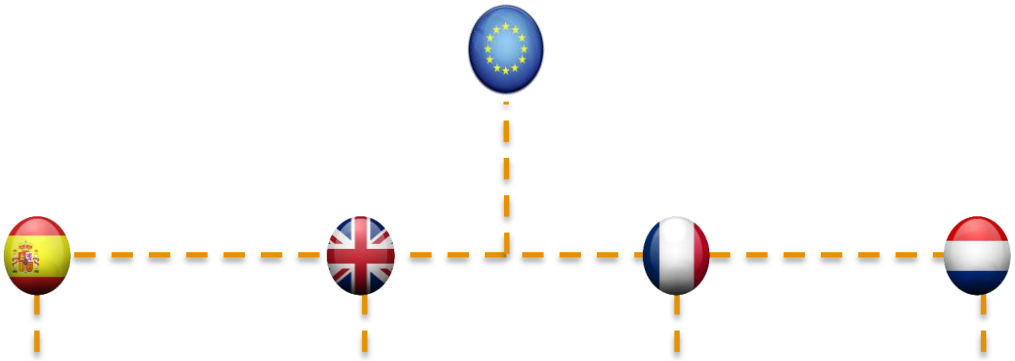
110,000km of sewer, 2,530 pumping stations and 1.2 million manholes

Two sludge-powered generators and 19 combined heat and power plants generating 153 GWh of renewable electricity

What is SW4EU ?

- ✓ Smart Water Networks demonstration project
- ✓ 21 Organisations
- ✓ 4 years
- ✓ 4 demonstration sites
- ✓ Started Jan 2014

Why are we working with overseas partners?



- ✓ Not all solutions are in the Thames Valley
- ✓ Benchmarking opportunity
- ✓ Working together with some of the best in the sector

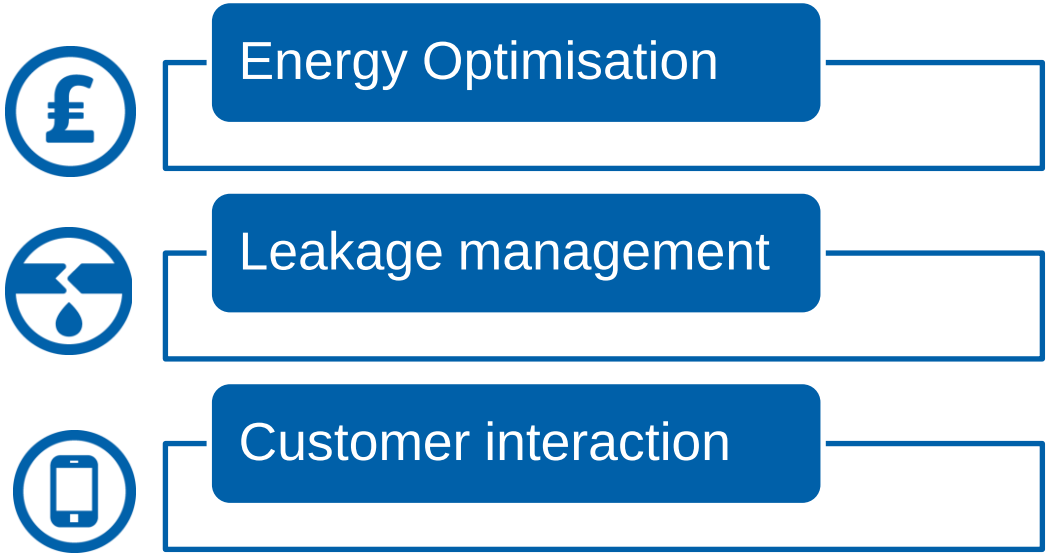
Spanish town
TBC

TWIST
Reading
(1.042 km)

Sunrise Demo site
Lille
12 km

VIP
Leeuwarden
2.200 km

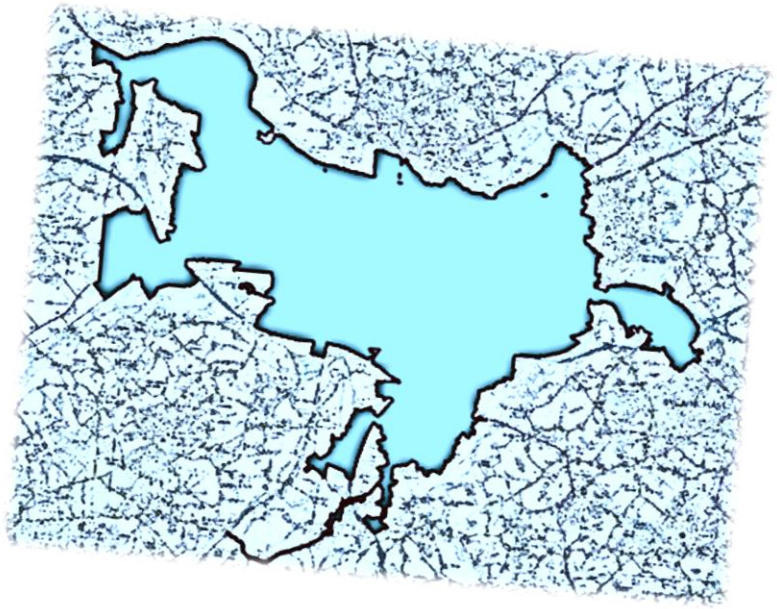
What are we going to do?



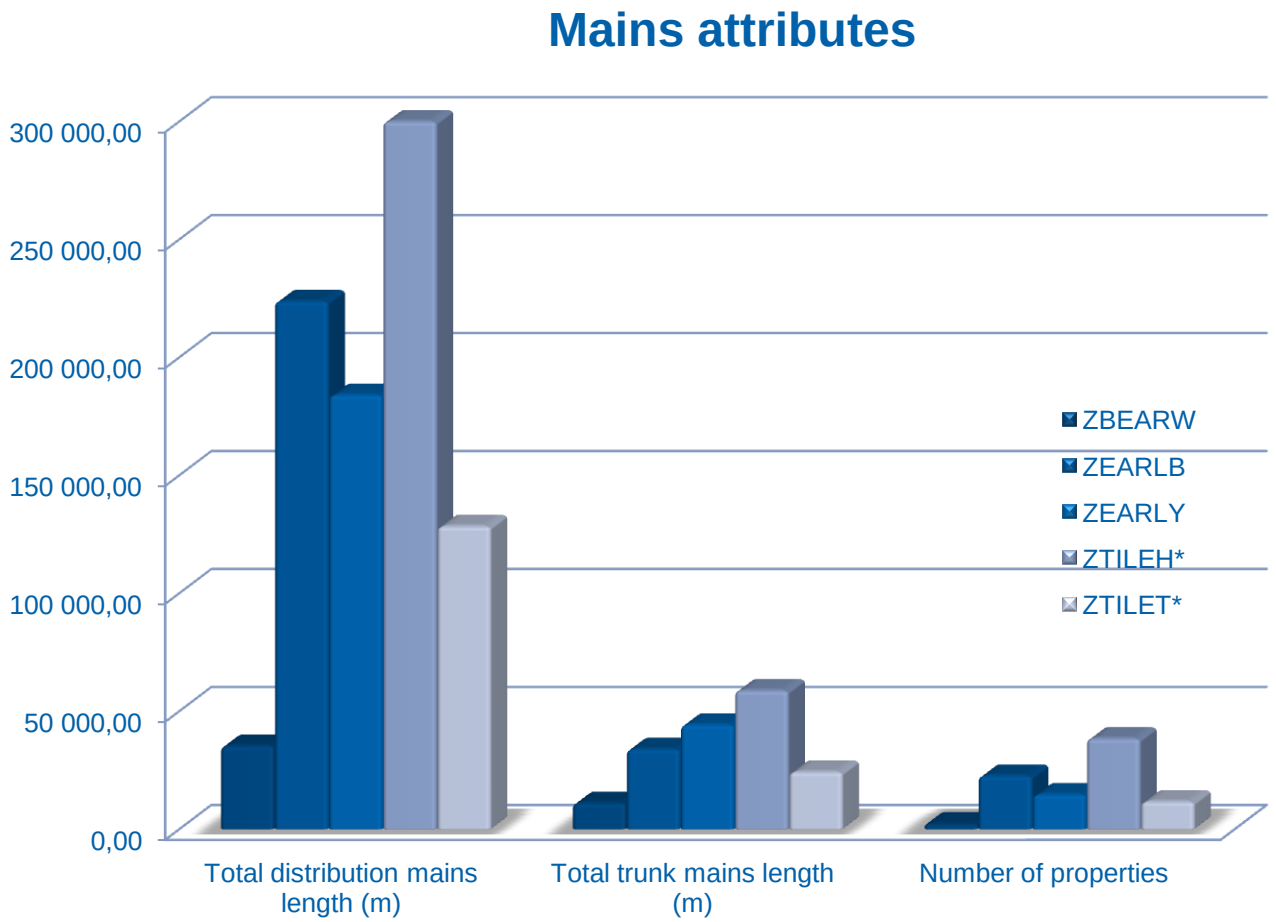
We are building a demonstration site in Reading, where SW4E will focus on delivering three key benefits

What is the UK demonstration site?

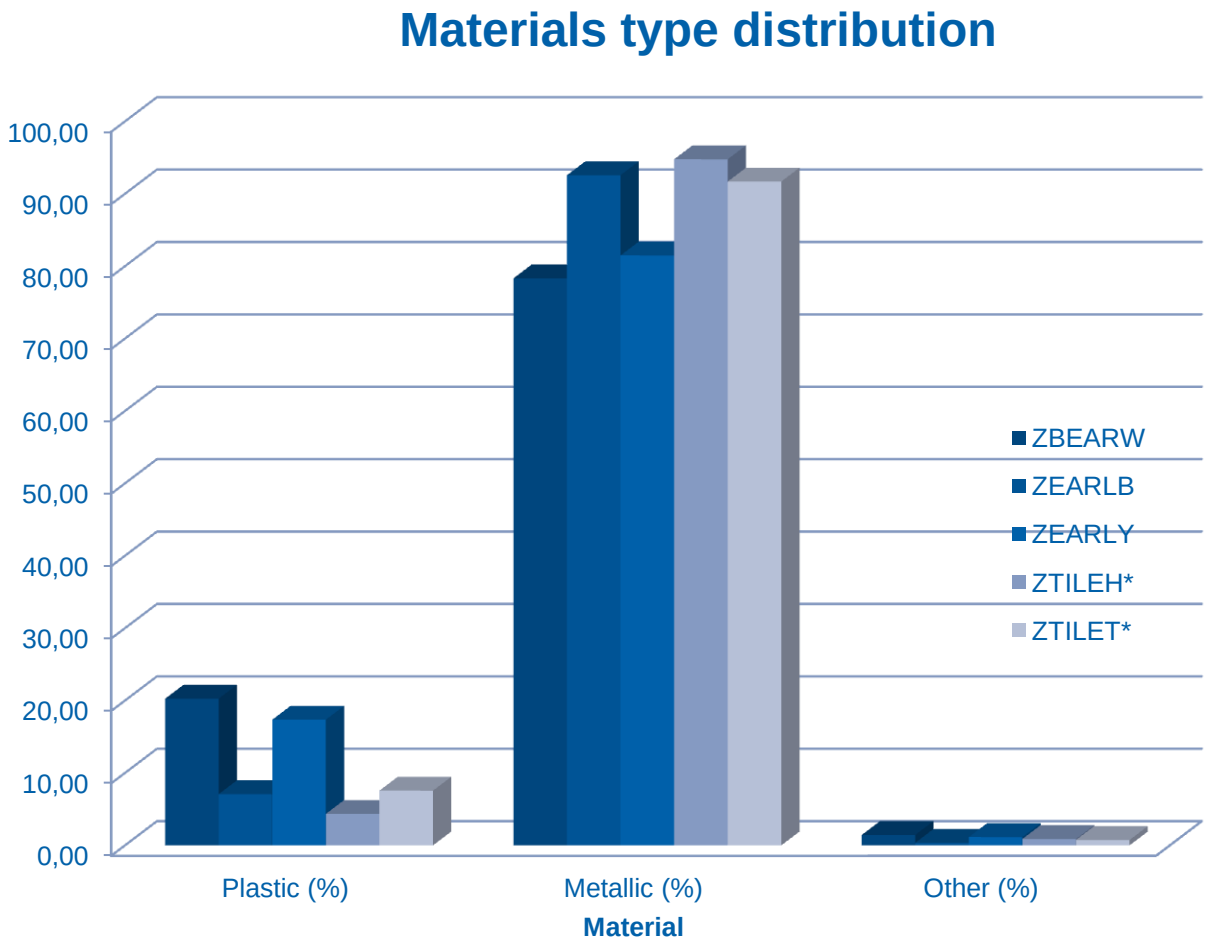
- ✓ Area fed by Fobney WTW
- ✓ 870 km of distribution mains
- ✓ 172 km of trunk mains
- ✓ 45 Ml/d of chlorinated potable water
- ✓ Ø from 4” (100 mm) up to 32” (800 mm)
- ✓ Many pipes over 60 years old
- ✓ 89.000 customers



TWIST


Mains attributes
300 000,00
250 000,00
200 000,00
150 000,00
100 000,00
50 000,00
0,00
ZBEARW
ZEARLB
ZEARLY
ZTILEH*
ZTILET*
Total distribution mains length (m)
Total trunk mains length (m)
Number of properties

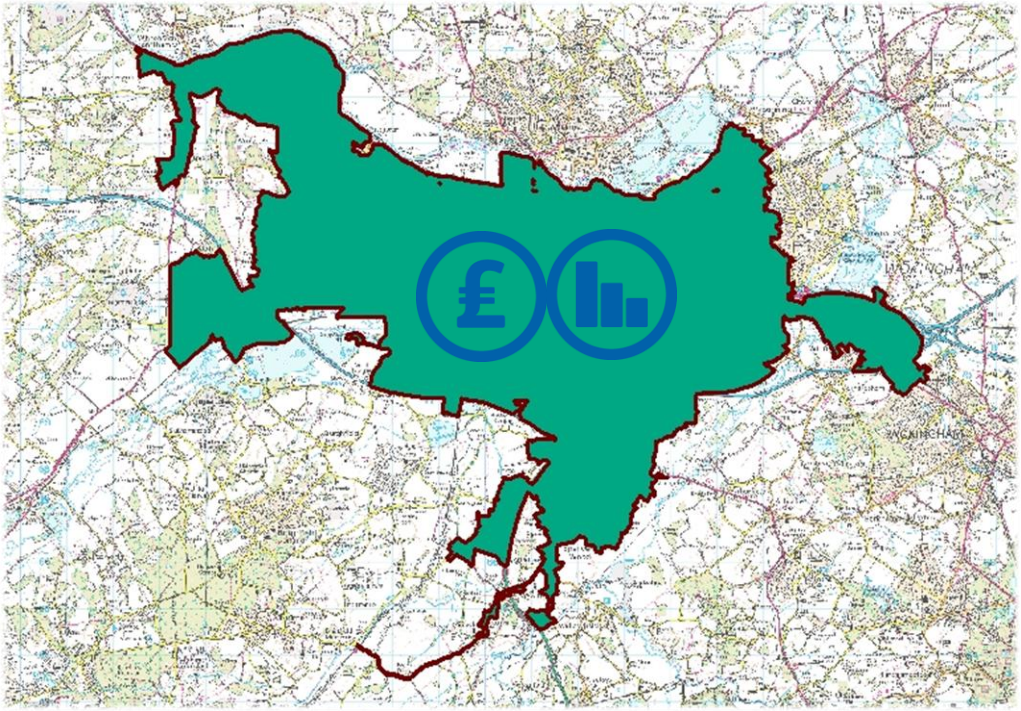
TWIST


Materials type distribution
100,00
90,00
80,00
70,00
60,00
50,00
40,00
30,00
20,00
10,00
0,00
ZBEARW
ZEARLB
ZEARLY
ZTILEH*
ZTILET*
Plastic (%)
Metallic (%)
Other (%)
Material

What does SW4EU mean for our customers?

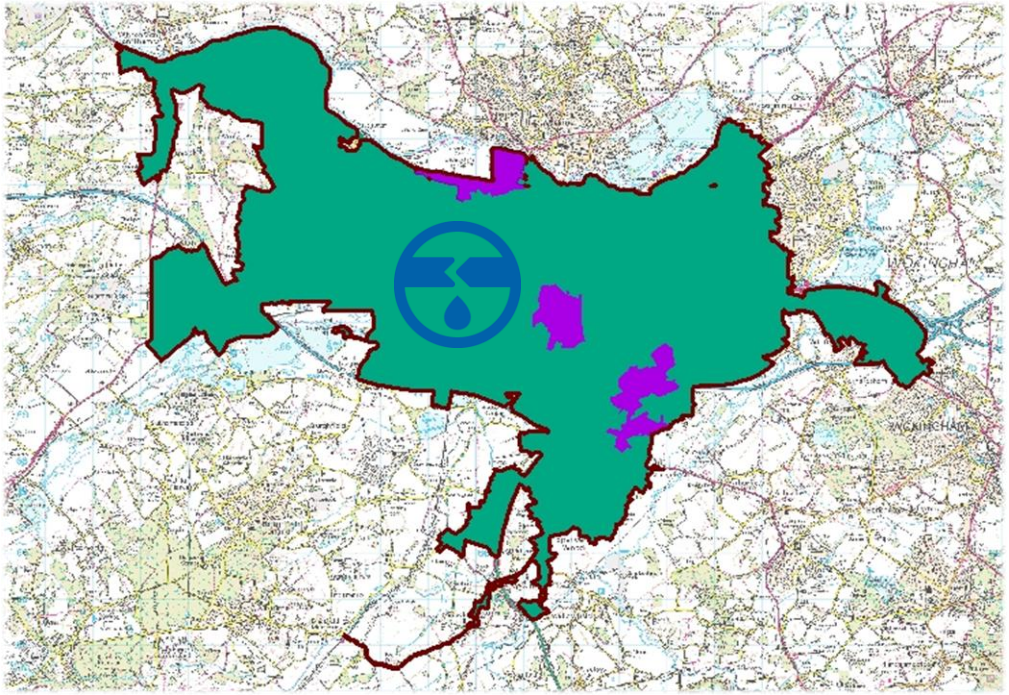
- ✓ Industry-leading leak monitoring equipment
- ✓ No bill impact
- ✓ Better managed operational events
- ✓ Less disruption
- ✓ Real time information about their consumption

Energy Optimisation



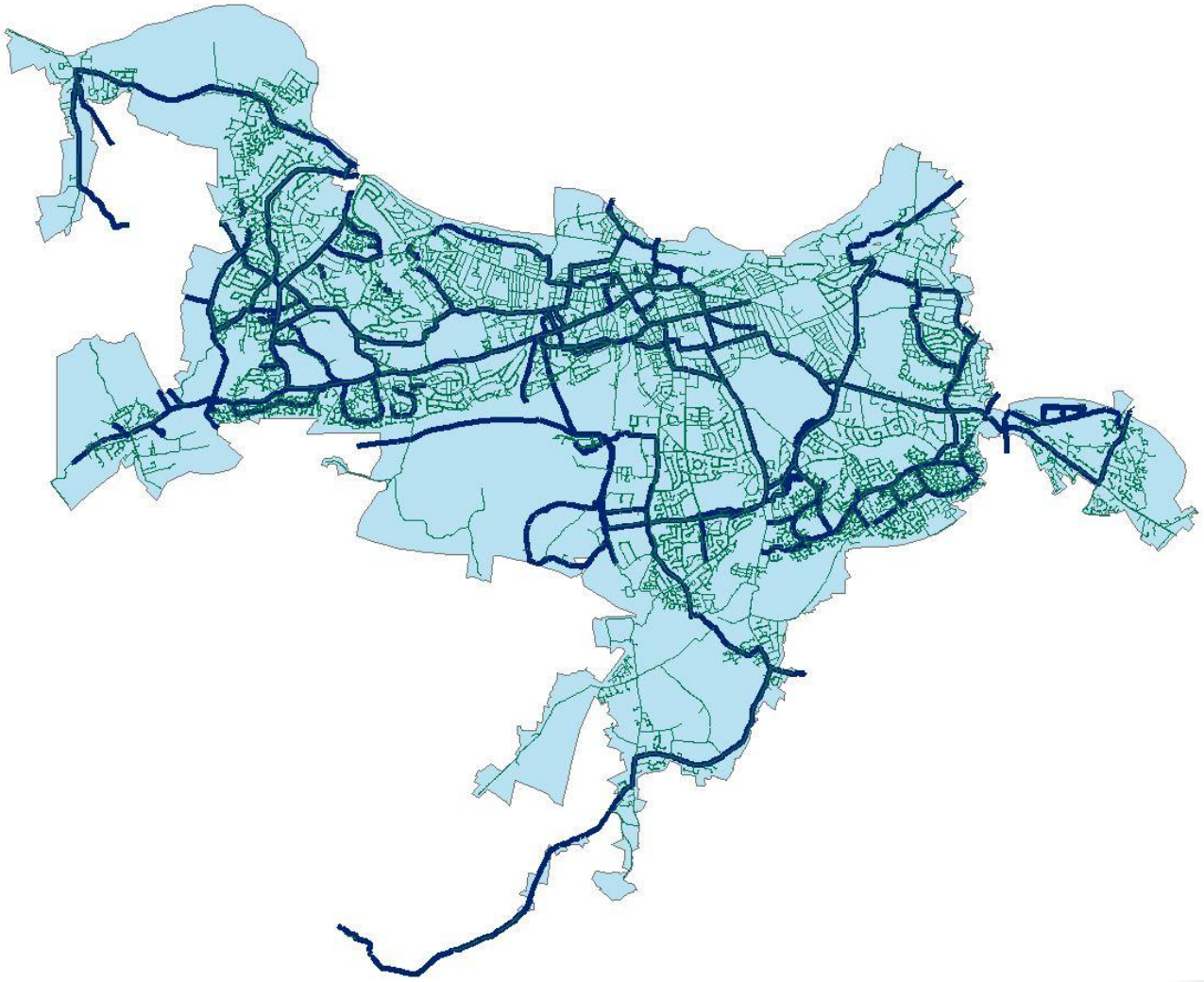
- ✓ Energy optimisation in the network
- ✓ Holistic approach with leakage
- ✓ Whole of Fobney WTW fed area

Leakage Management



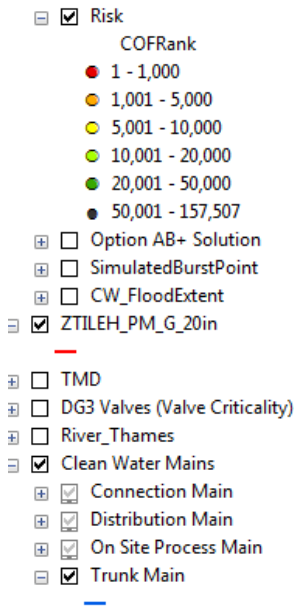
- ✓ Find leaks soon after they occur / failure mechanisms before they occur.
- ✓ 4 DMAs featuring absolute water balance
- ✓ Installation of a range of technologies

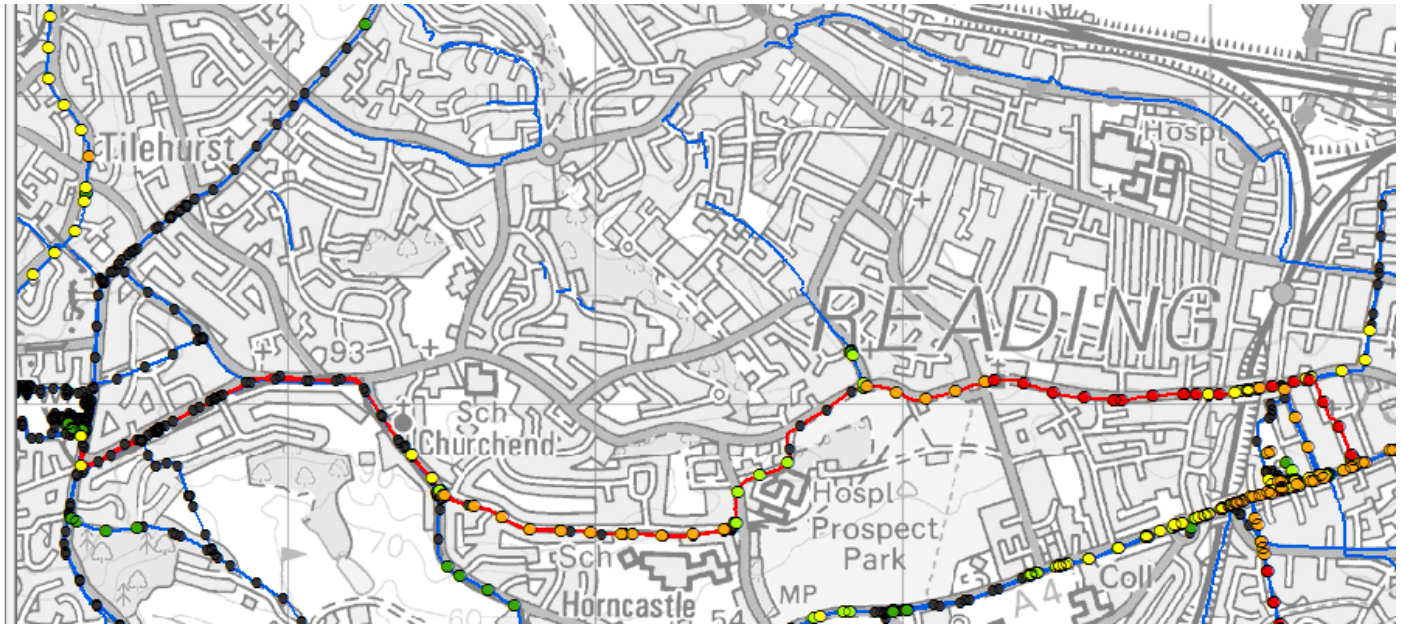
Demonstration Site – Trunk mains



Demonstration Site – Trunkmains

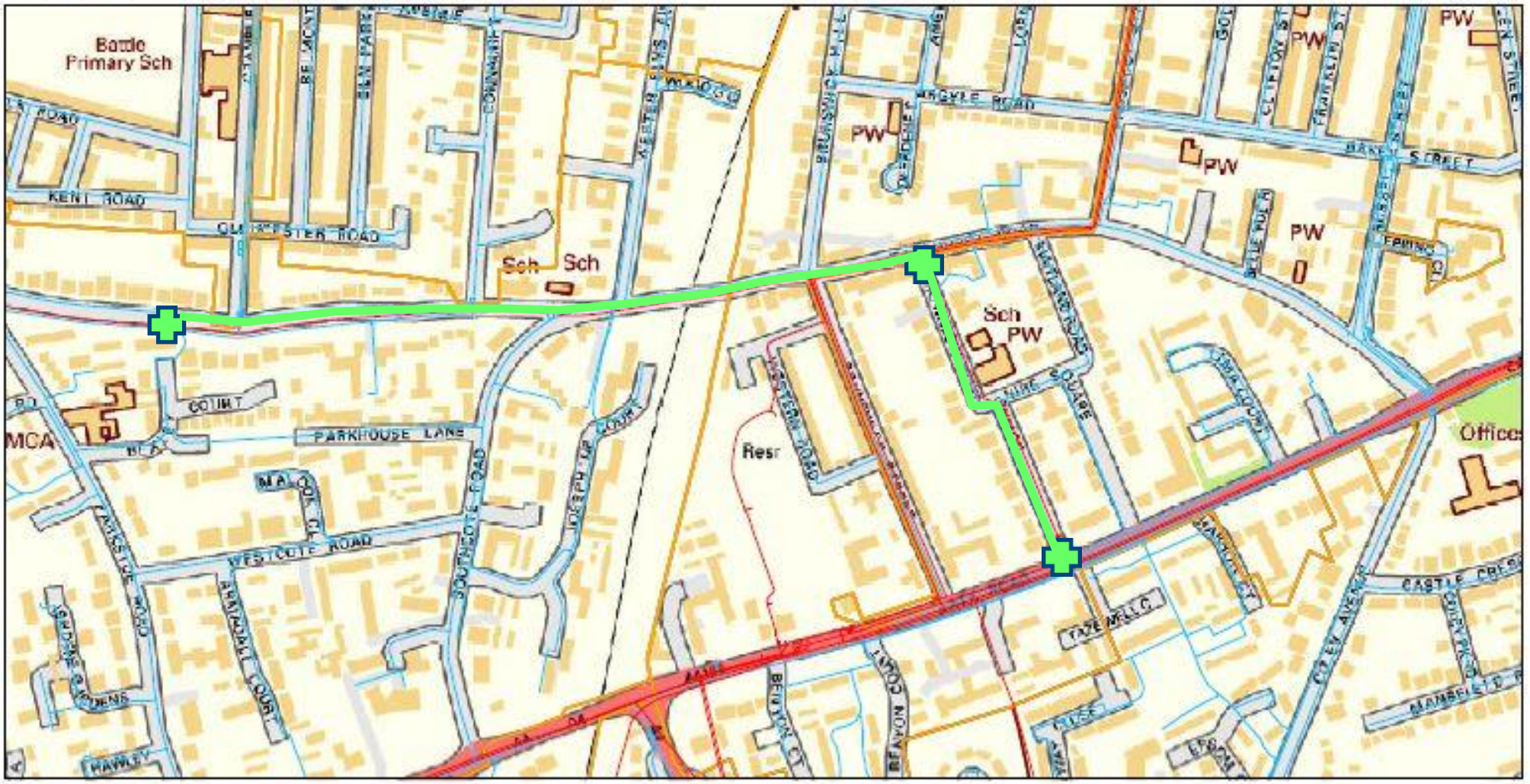
The project will instrument the riskiest 20" trunk main in Reading for a very low capital cost, benefiting customers earlier.





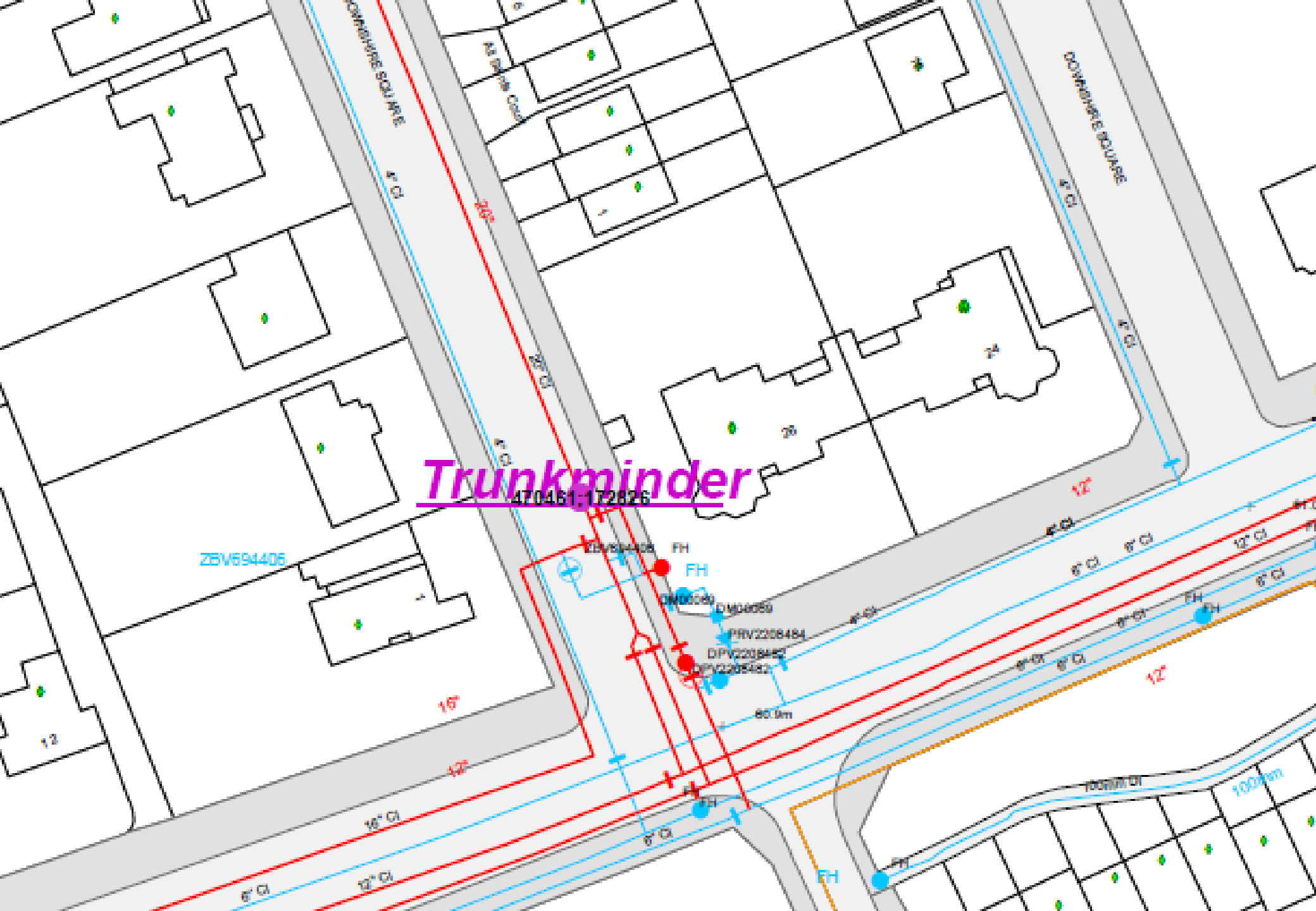
Based on the Ordnance Survey Map with the Sanction of the Controller of H.M Stationery Office License Number 100019345

Trunkminders

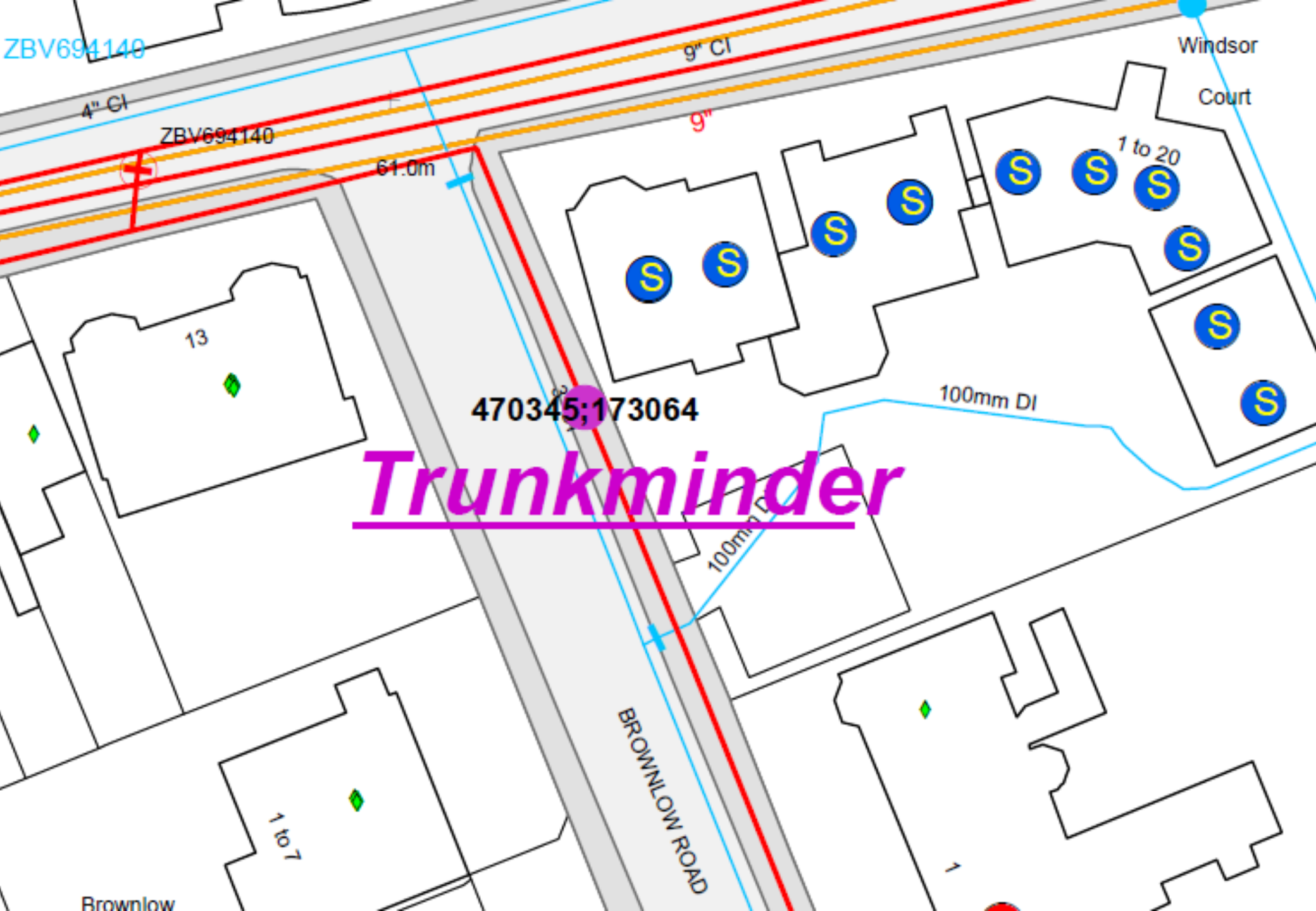


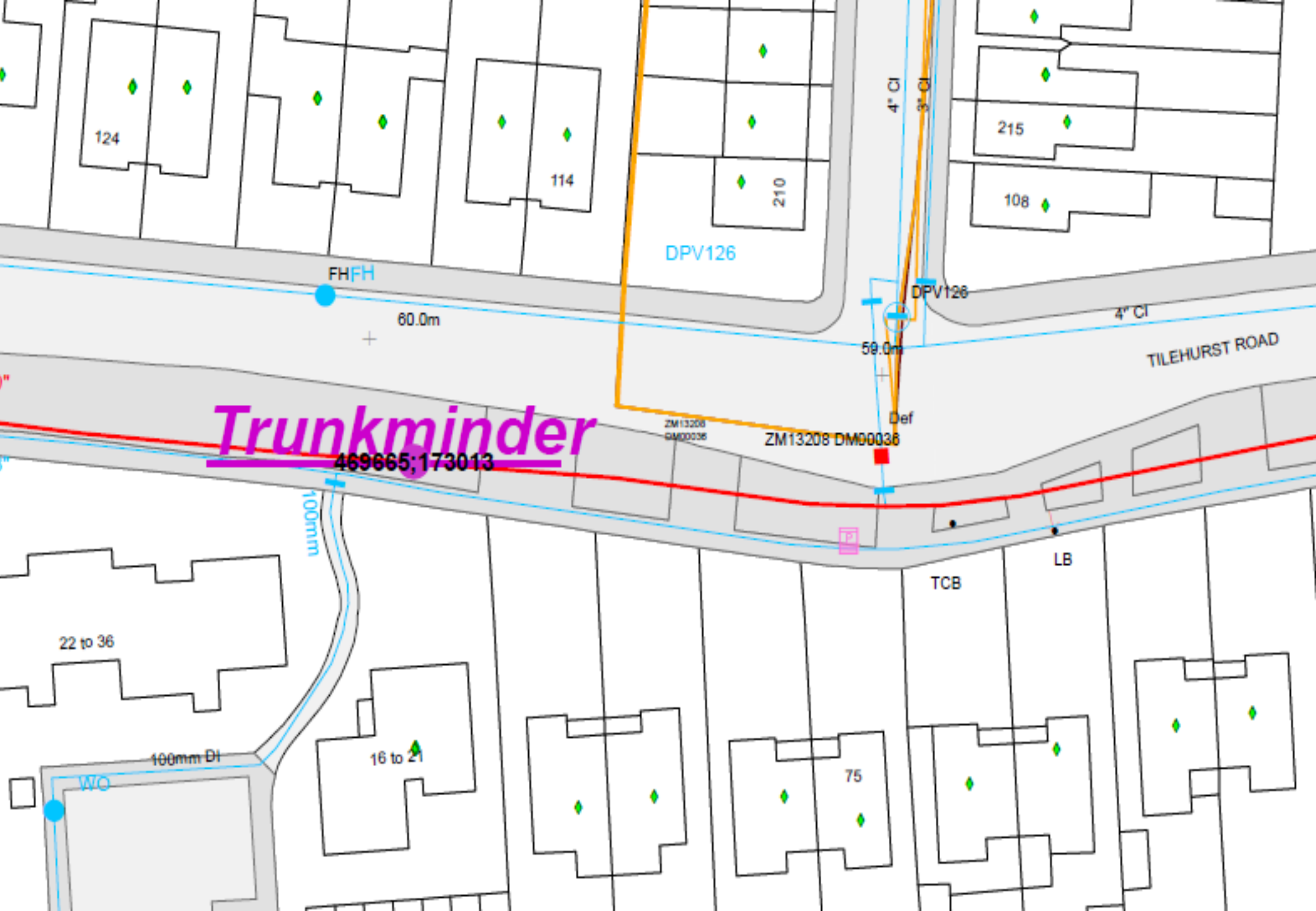
The position of any boundary or apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. No liability of any kind whatsoever is accepted by Thames Water for any error or omission.

Bus lane
30
Zone
ENDS


Trunkminder
470461;172826
ZBV694406
DOWNSHIRE SQUARE
DOWNSHIRE SQUARE
FH
FH
FH
FH
FH
FH
PRV2208484
DPV2208482
DPV2208482
60.9m
100mm DI
100mm
4" CI
6" CI
12" CI
16" CI
20" CI
12"
16"
20"
24
26
12

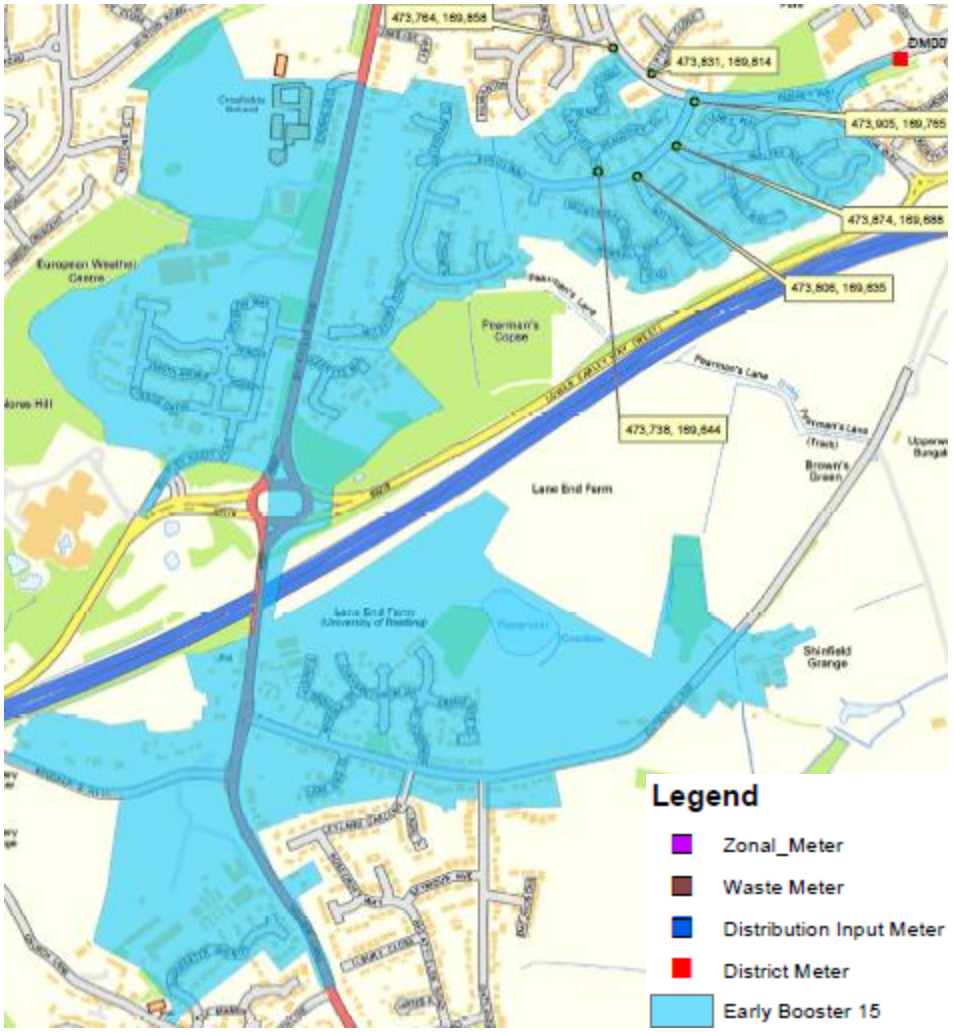
30
Zone
ENDS
BROWNLOW ROAD


ZBV694140
4" CI
ZBV694140
9" CI
9"
61.0m
Windsor
Court
1 to 20
13
470345;173064
100mm DI
100mm DI
BROWNLOW ROAD
1 to 7
Brownlow
1
Trunkminder


Trunkminder
469665;173013
124
114
210
215
108
DPV126
FHFH
60.0m
DPV126
59.0m
4" CI
4" CI
4" CI
TILEHURST ROAD
Def
ZM13208 DM00036
100mm
22 to 36
16 to 21
100mm DI
WO
75
TCB
LB

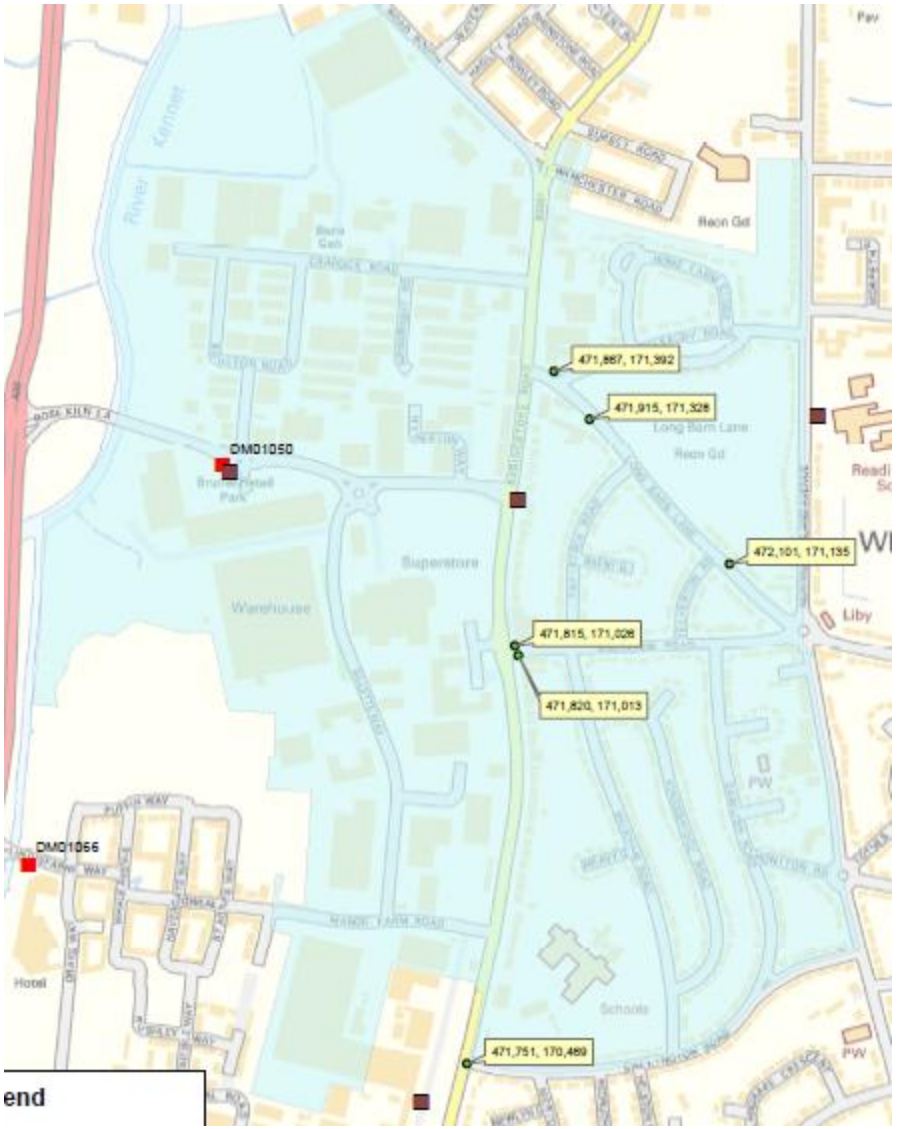
Earley Booster 14

Earley Booster 15

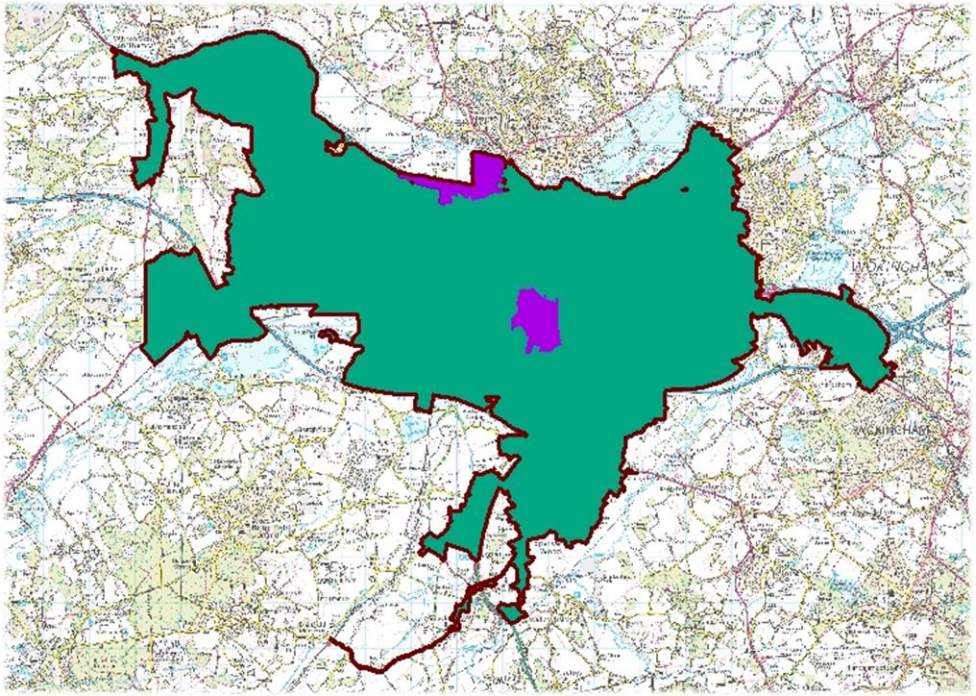


Tilehurst 12

Earley 8

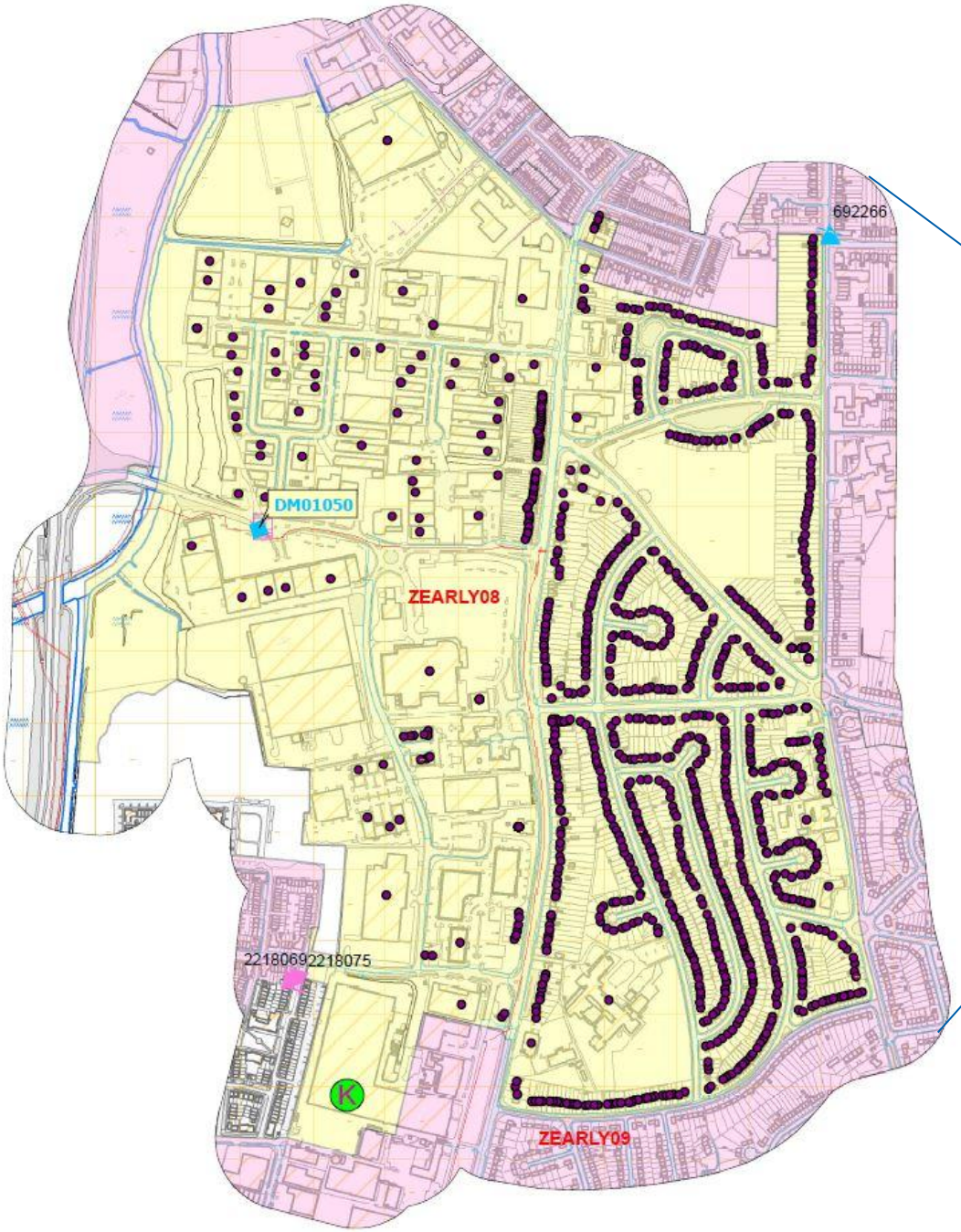

DM01050
DM01056
471,887, 171,392
471,915, 171,328
472,101, 171,135
471,815, 171,026
471,820, 171,013
471,751, 170,469
Legend
Zonal_Meter
Waste Meter
Distribution Input Meter
District Meter
Earley 08

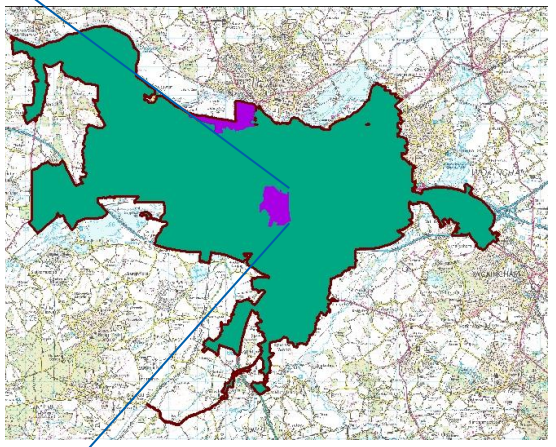
Customer Interaction

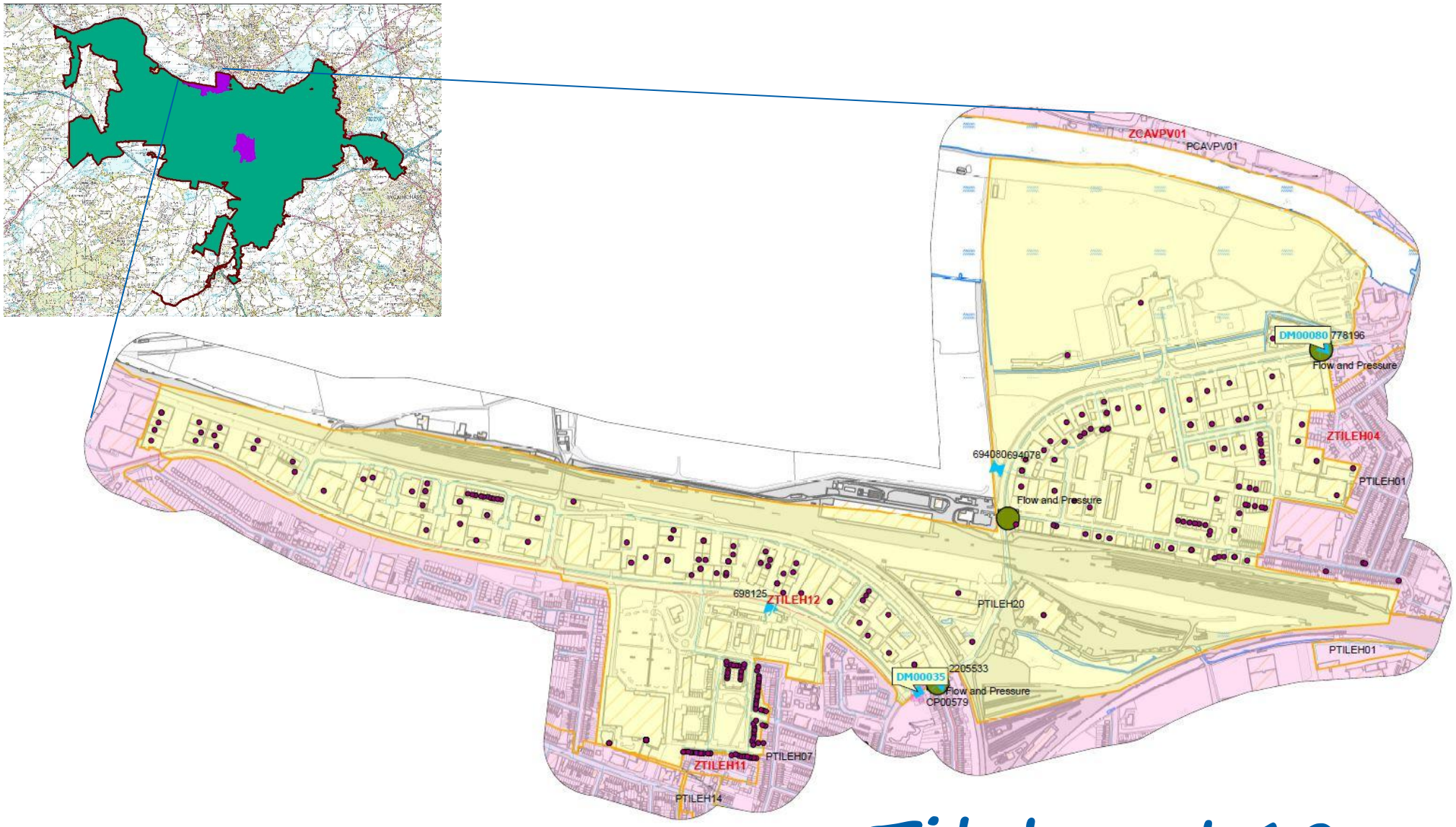


- ✓ Increase customer awareness towards water usage
- ✓ Influence customer behaviour and demand patterns.
- ✓ Using AMRs
- ✓ Focused on Tilehurst 12 and Early 8

Early 8







Tilehurst 12

Customer Journey

SW4EU

Gamification (SmartH2O)

Leaflet drop

Smart home visits

Free water saving devices

Non-metered

Smart Metered

Smart metered with data available over web and smart-phones

Thames Water

Work we've done

- ✓ Defined the solution
- ✓ Established requirements
- ✓ Construction
- ✓ Documentation

What is next?

- ✓ Integrate the sensors
- ✓ Hydro Analytics
- ✓ Cost – benefit analysis
- ✓ Prove the value!
- ✓ Dissemination