



Royal Borough of Kensington and Chelsea

Counters Creek Sewer Flooding Alleviation



Sewer flooding – Thames Water's position

- We share our customer's view that sewer flooding inside peoples homes in unacceptable and we are serious about providing solutions –
 - Taking Care of Water – our strategy for the 25 years 2010 to 2035 to eliminate high risk sewer flooding
 - £323 million spent from 2005 to 2010 to alleviate sewer flooding – reduce the flood risk to over 5500 properties and areas by 2010.
 - Business Plan 2010 to 2015 – our final business plan includes £180 m to reduce the flood risk to 3500 properties

Agenda



1. Action to date
2. Study
3. Possible solutions
4. Next steps

1. Actions since January 2008



Customer meetings

Written response to all questions submitted at January 2008 meeting
St James's Gardens residents meeting Boscombe Road
residents meeting

MPs

Flood relief schemes discussed at party meetings with MPs
Meetings with Sir Malcolm Rifkind MP and Andrew Slaughter
MP

Local authorities

Hammersmith and Fulham – scrutiny meeting (Oct 2008)
Kensington and Chelsea – meeting with council leader –
Merrick Cockell (Dec 2008)

Ofwat

Meetings to discuss Counters Creek
Sewer visit



1. Actions since January 2008

Individual property studies and short-term measures

	Hammersmith and Fulham	Kensington and Chelsea
Number of Contacts made July 2007	283	478
Studies completed	10	178
Storm flaps installed	2	87
Customers investigated and mitigation found not suitable	7	36

Norland Square

- We are currently constructing a large flood relief scheme at Norland Square
- This will reduce the number of properties on our 'high risk' register from 167 to 44 by March 2010

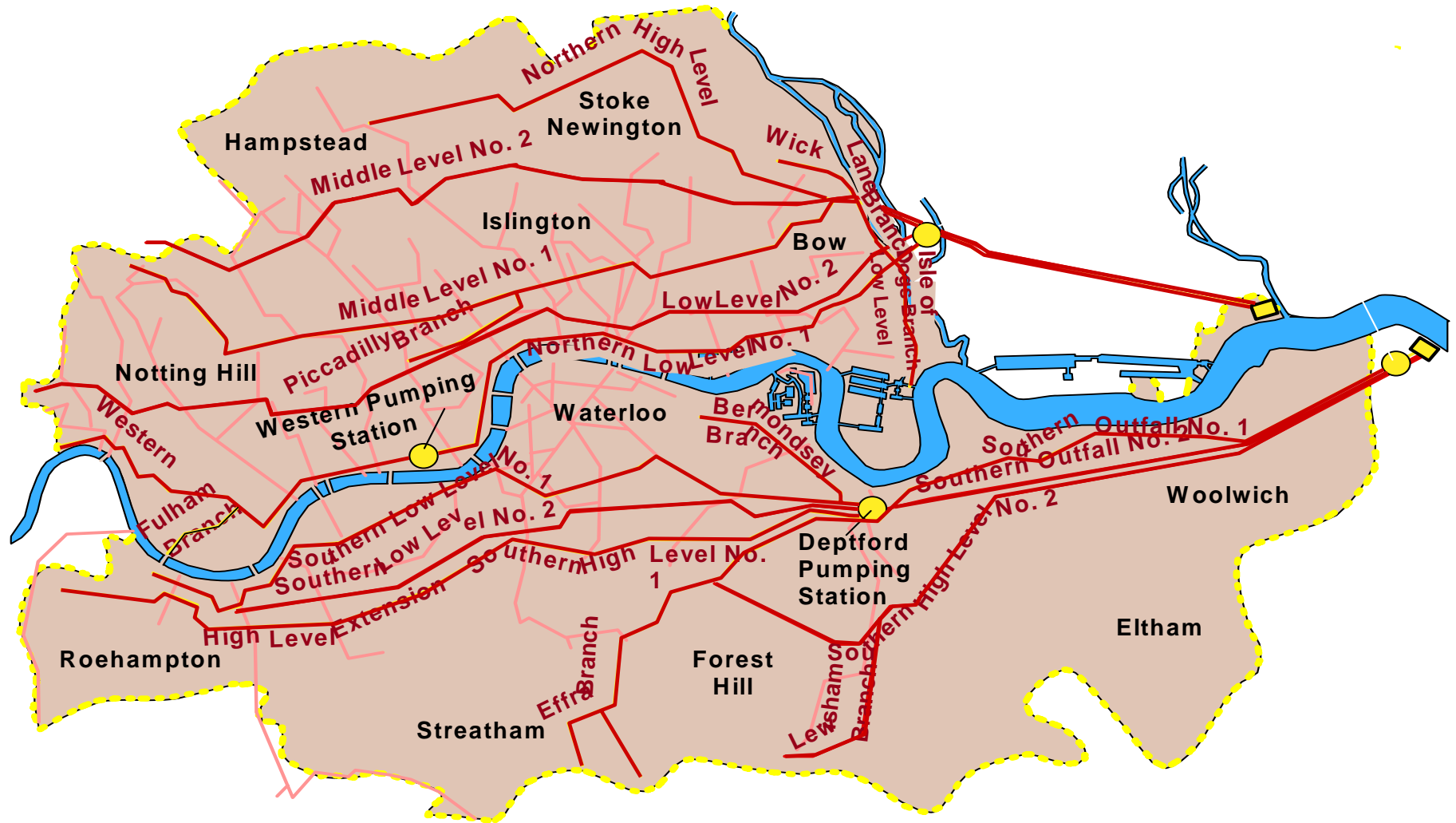
1. Actions since January 2008

■ Long-term study and investigation

- Work has been ongoing for last two years on computer 'model' to improve understanding of how local sewer networks responds to various rainfall patterns.
- Despite best endeavours to eliminate high-risk flooding, model indicates significant number of basements are at risk and situation will worsen if no action is taken.

2. Study

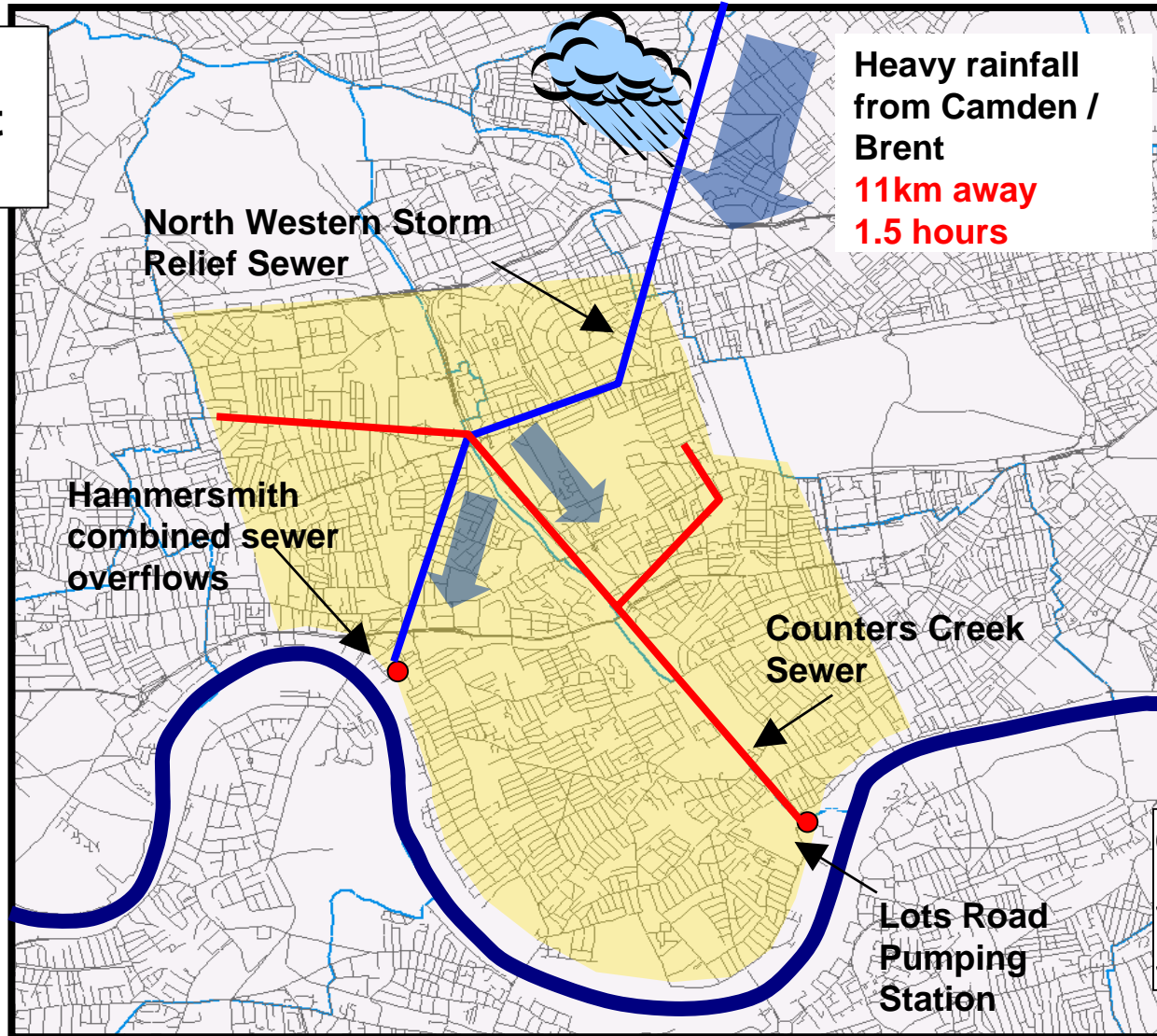
Interceptor sewers at present day



2. Study – flooding risk



Wide
Catchment
Area



Heavy rainfall
from Camden /
Brent
11km away
1.5 hours

North Western Storm
Relief Sewer

Hammersmith
combined sewer
overflows

Counters Creek
Sewer

Lots Road
Pumping
Station

Combined
Sewerage
System

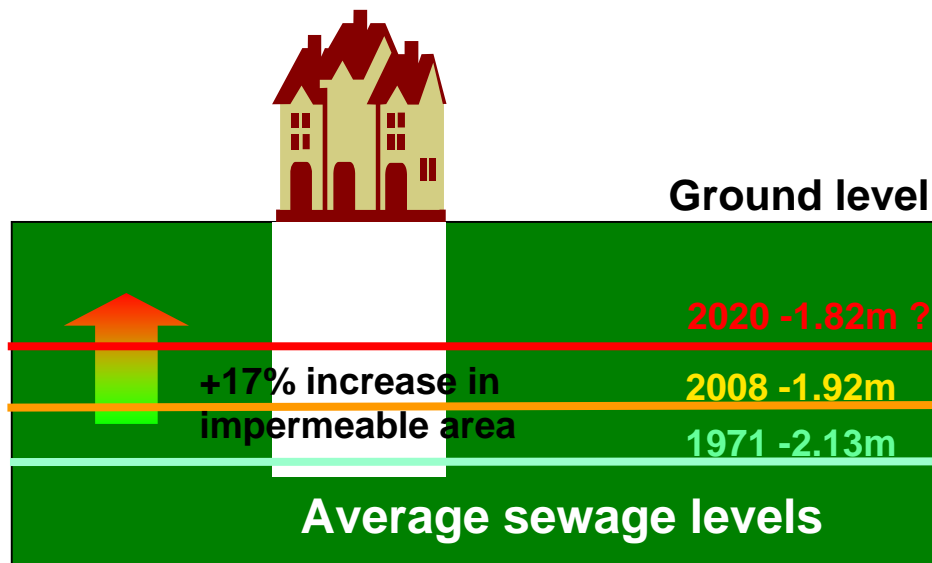


2. Study – flooding risk

Characteristics of local area increase risk of flooding:

- Wastewater enters Counters Creek from as far away as Brent and Camden.
- 17% increase in impermeable area (due to paving over of gardens etc)
- Sewers are shallow and have to be pumped into the River Thames during heavy rain.
- There are 37,000 basements in the area which is around 5 times higher than the national average
- **1,413** properties are on risk registers from incidents customers have reported in 2004, 2005 and 2007 and earlier events
- Of the above, 500 flooded for the first time in July 2007 storms across the area. Study suggests they will not flood in next 20 years or more.
- Study suggests 7,267 basement properties are currently at risk of flooding due to a 1 in 10 year or more frequent event

2. Study – flooding risk



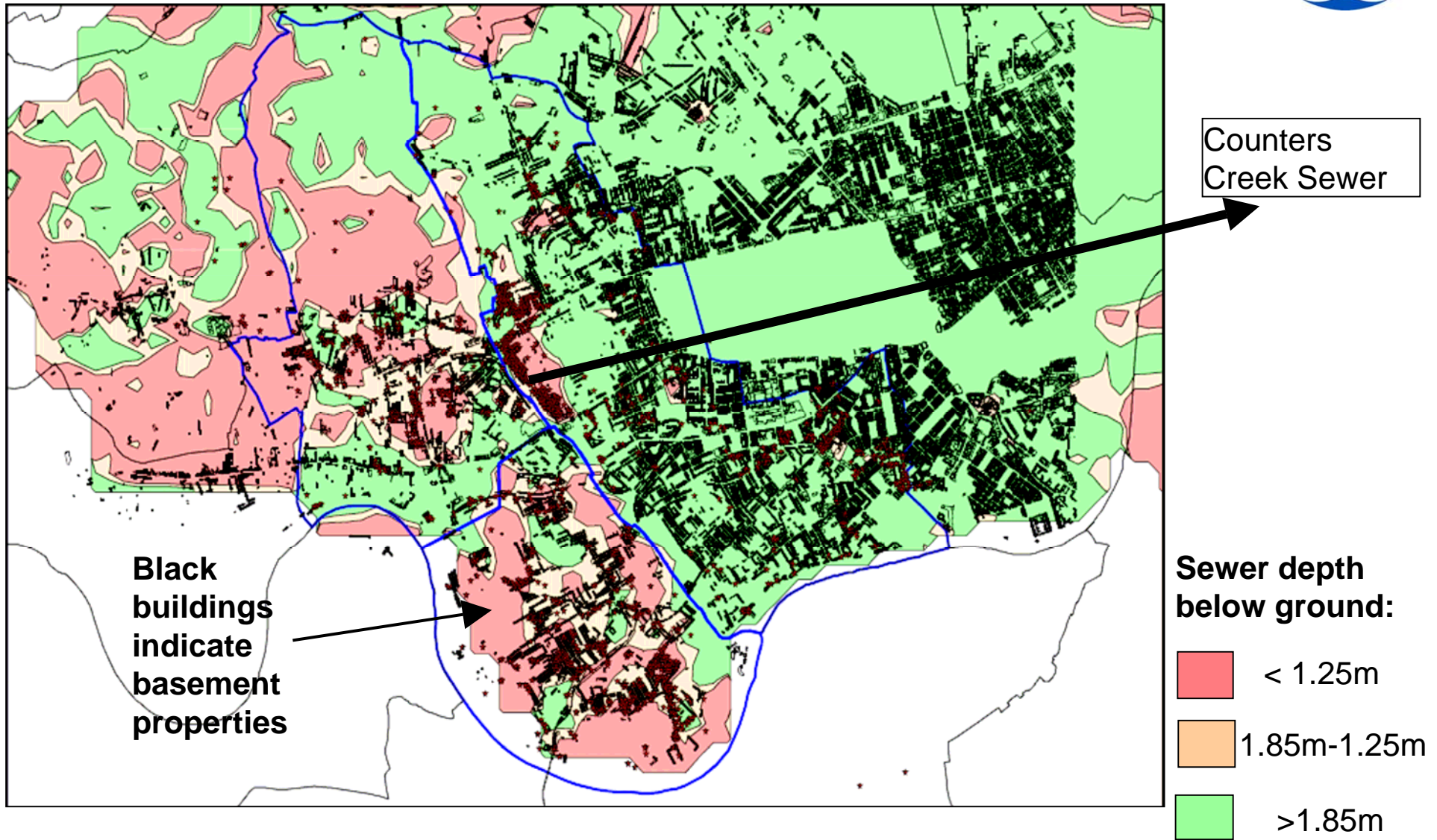
- Sewer is on gradient, and levels in sewer have risen over time.
- In 1971, flooding took place from sewer at depth of 2.13 metres.
- Last year, flooding occurred from sewer at depth of 1.92 metres.
- In 2020, flooding is likely to occur at depth of 1.82 metres.
- Effect is worsened by loss of permeable surfaces.



2. Study – flooding risk

- 167 properties on our register at 1 in 10 or more frequent risk
- 1,413 properties reported flooding to date in the Counters Creek catchment on all risk-registers
- Model predicts 7,267 properties are currently on the 1 in 10 or more frequent risk-register
- Difference due to actual risk being greater than statistical probability, and residents not reporting flooding incidents

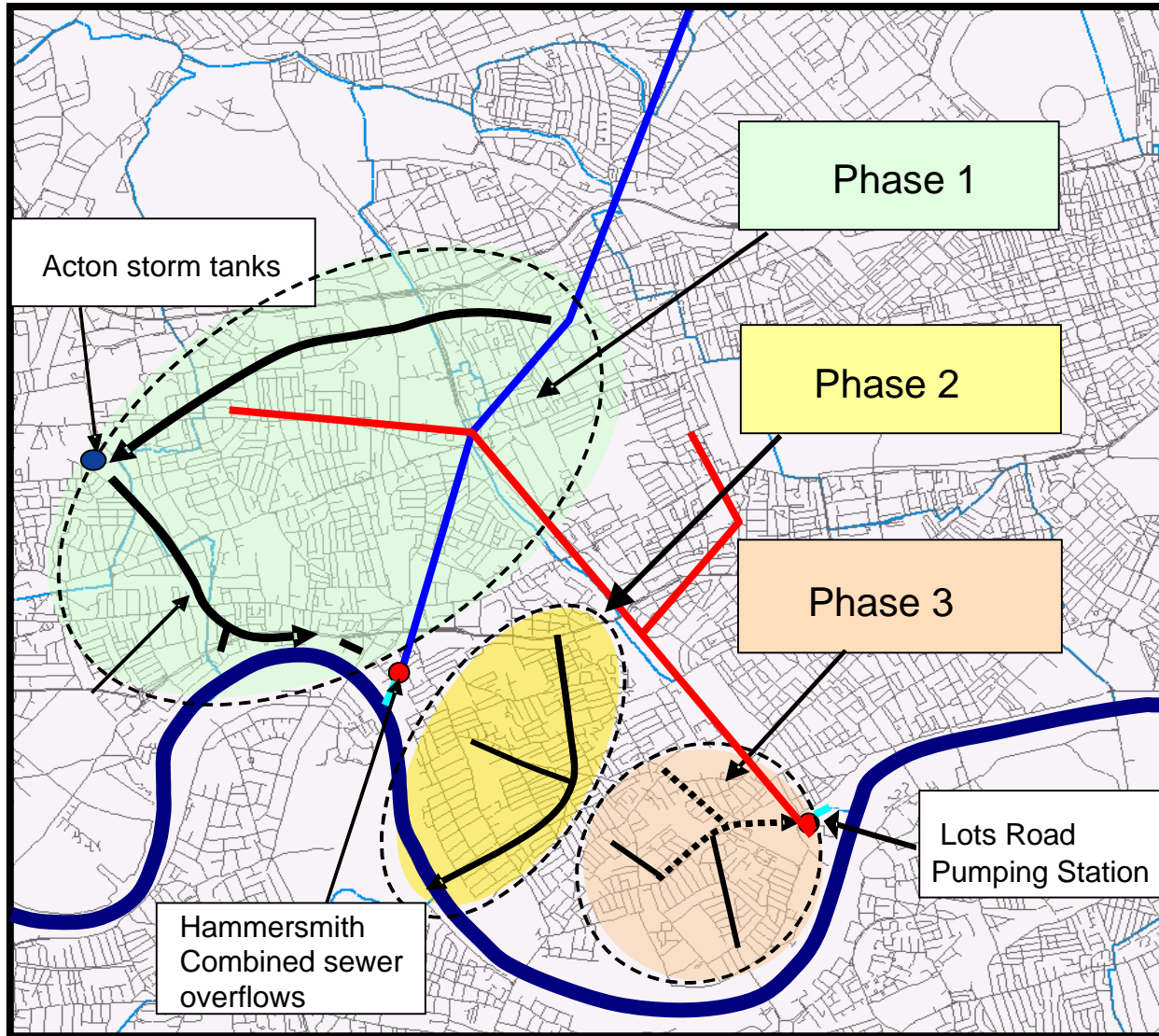
2. Study - analysis and options



3. Possible solutions

- Include 'Sustainable Urban Drainage Systems' – e.g. permeable/porous surfaces; ponds/basins
- Install 'package pumping stations' – storm flap, plus pump allowing sewage to be released into sewer
- Increase capacity of pumping stations
- Create storage tanks, which pump wastewater back into sewers once storm has passed
- Divert sewage which enters area from Camden/Brent

3. Possible solution





4. Next steps - responsibilities

Thames Water

Investigate, design and construct solution to protect properties from flooding

Local authority

Take a lead on planning applications that could adversely affect drainage, and work to co-ordinate agencies' involvement

Ofwat

Work on behalf of customers, with Thames Water, to ensure right solution at affordable price

Customers

Report all and every case of flooding



Regulatory position

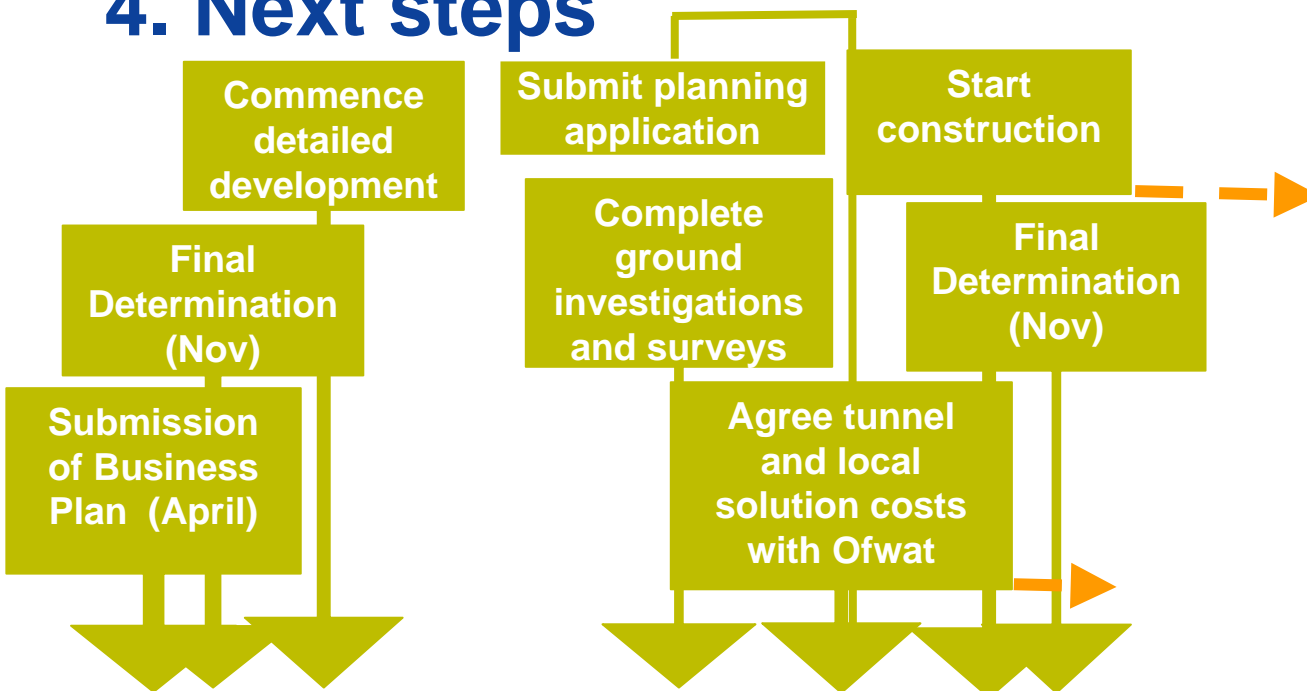
- Significant action is required
- Further work on the Counters Creek hydraulic model
- Possibility of Sustainable Urban Drainage Systems (SUDS) investigated as part of the overall solution.

Going Forward



- Thames Water has asked for £32 m in the Final Business Plan
- Final determination by Ofwat of the business plan November 2009
- Ongoing engagement

4. Next steps



Six monthly updates to customers	Ongoing communications
----------------------------------	------------------------

- Planning and development
- Construction



Additional slides

Improving the Tidal Thames

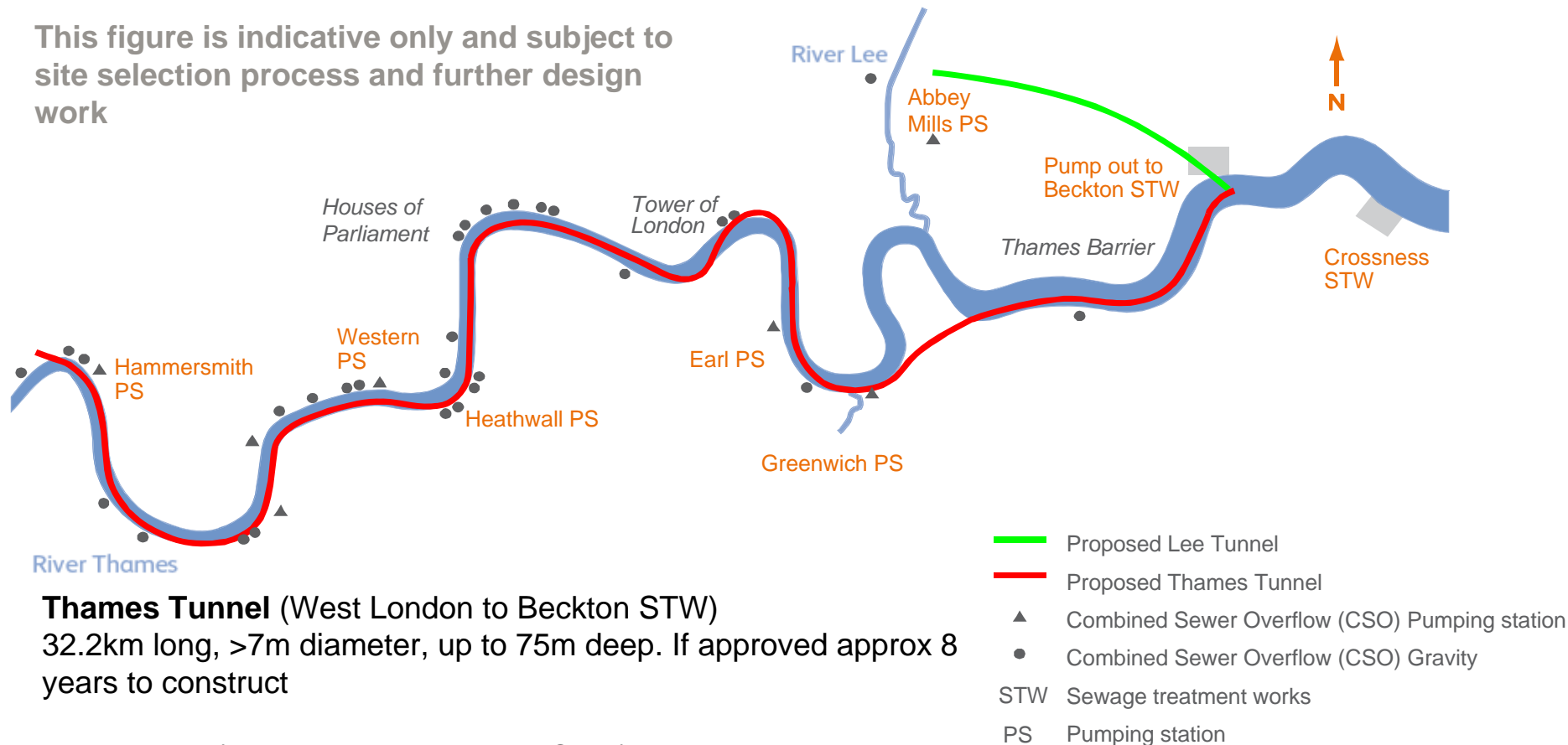


- Latest contribution to river water quality improvements
- Main drivers
 - River quality (fish, health & litter)
 - “A world-class river for a world-class city”
 - UK compliance with legislation
- Two separate tunnels – the Lee Tunnel and the Thames Tunnel – reducing the discharges from Combined Sewer Overflows (CSOs)
- Investment to Improve the sewage treatment works (STW) discharging into the tidal Thames

Improving the Tidal Thames and Lee Tunnels

Thames and Lee Tunnels Proposed concept

This figure is indicative only and subject to site selection process and further design work



River Thames

Thames Tunnel (West London to Beckton STW)

32.2km long, >7m diameter, up to 75m deep. If approved approx 8 years to construct

Lee Tunnel (Abbey Mills to Beckton STW)

6.9km long, >7m diameter, up to 75m deep
If approved approx 5 years to construct